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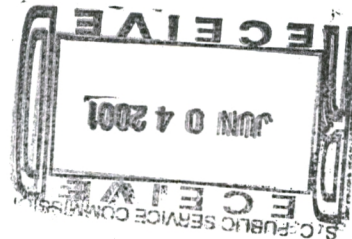
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June 4, 2001

Via Hand Delivery

Mr. Gary E. Walsh
Executive Director
South Carolina Public Service Commission
Synergy Business Park
101 Executive Drive
Columbia, SC 29210



***Re: Generic Proceeding to Establish Prices for BellSouth Telecommunications, Inc.s
Unbundled Network Elements and Other Related Elements and Services
Docket No. 2001-65-C***

Dear Mr. Walsh:

Enclosed for filing with the Commission, please find twenty-five copies of the prefiled testimony of Don Wood, Cynthia Wilsky, Dean Fassett, Jerry Willis, Michael Starkey and Jake Jennings on behalf of the CLEC intervenors in the above docket.

Please note that in accordance with information provided by BellSouth, the Commission and other parties who have signed the confidentiality agreement with BellSouth have been served with prefiled testimony containing proprietary information. All others on the attached service list have received prefiled testimony containing no proprietary information. The prefiled testimony of Cynthia Wilsky and Jake Jennings contained no proprietary information and thus all parties have received the "public" version of that testimony.

Please call me if you have any questions.

Very truly yours,

Faye A. Flowers
Faye A. Flowers

FAF/ccq

Enclosures

cc: Attached Service List

Certificate of Service

The undersigned certifies that on June 4, 2001, she caused to be served the foregoing **PREFILED TESTIMONY OF DON J. WOOD, CYNTHIA WILSKY, JERRY WILLIS, DEAN FASSETT, MICHAEL STARKEY AND JAKE JENNINGS** on all known parties of record by hand-delivery or placing a copy with Federal Express (where indicated) as follows:

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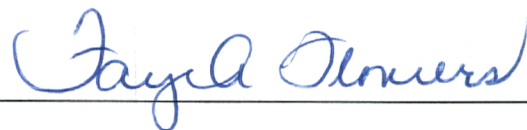
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POSTED
On 6-4-01

Direct Testimony of
Don J. Wood

BEFORE
THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA
DOCKET No. 2001-65-C

IN THE MATTER OF:)

Generic Proceeding to Establish Prices)
For BellSouth's Interconnection Services,)
Unbundled Network Elements and Other)
Related Elements and Services)

DIRECT TESTIMONY
OF DON J. WOOD
ON BEHALF OF

New South Communications, NuVox Communications, Broadslate Networks,
ITC^DeltaCom Communications, KMC Telecom

Note: With the exception of Exhibit DJW- 4, this testimony does not contain proprietary information. Accordingly, this exhibit will not be served on parties who have not signed BellSouth's proprietary agreement.

JUNE 4, 2001

RETURN DATE: OK DJ
SERVICE: OK DJ

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1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Don J. Wood. My business address is 4625 Alexander Drive, Suite 125,
3 Alpharetta, Georgia 30022. I am a principal in the firm of Wood & Wood, an economic
4 and financial consulting firm. I provide economic and regulatory analysis of the
5 telecommunications, cable, and related convergence industries with an emphasis on
6 economic policy, development of competitive markets, and cost of service issues.

7 Q. PLEASE DESCRIBE YOUR BACKGROUND AND EXPERIENCE.

8 A. I received a BBA in Finance with distinction from Emory University and an MBA with
9 concentrations in Finance and Microeconomics from the College of William and Mary.
10 My telecommunications experience includes employment at both a Regional Bell
11 Operating Company ("RBOC") and an Interexchange Carrier ("IXC").

12 I was employed in the local exchange industry by BellSouth Services, Inc. in its
13 Pricing and Economics, Service Cost Division. My responsibilities included performing
14 cost analyses of new and existing services, preparing documentation for filings with state
15 regulatory commissions and the Federal Communications Commission ("FCC"),
16 developing methodology and computer models for use by other analysts, and performing
17 special assembly cost studies. I was also employed in the interexchange industry by MCI
18 Telecommunications Corporation, as Manager of Regulatory Analysis for the Southern
19 Division. In this capacity I was responsible for the development and implementation of
20 regulatory policy for operations in the southern U. S. I then served as a Manager in the

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Economic Analysis and Regulatory Affairs Organization, where I participated in the development of regulatory policy for national issues.

Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY BEFORE STATE REGULATORS?

A. Yes. I have testified on telecommunications issues before the regulatory commissions of thirty states, Puerto Rico, and the District of Columbia. I have also presented testimony regarding interconnection and cost of service issues in state, federal, and overseas courts and have presented comments to the FCC. A listing of my previous testimony is included in Exhibit DJW-1.

Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY TO THIS COMMISSION ON COST OF SERVICE ISSUES RELATED TO TELECOMMUNICATIONS?

A. Yes. I presented testimony on the cost of service issues related to the implementation of the Federal Telecommunications Act ("FTA") in Dockets 96-358-C, 96-375-C, 97-374-C, 97-239-C, 1999-259-C.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been asked by NewSouth Communications Corp., Broadslate Networks of SC, Inc., ITC^DeltaCom Communications, Inc., KMC Telecom III, Inc. and NuVox Communications, collectively the "Competitive Coalition", to review the cost studies performed by BellSouth in support of certain of their proposed UNE rates in this proceeding. Specifically, I attempted to accomplish the following:

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1 1. Evaluate the new BellSouth Telecommunications Loop Model (“BSTLM”)
2 used to develop network investments for loop-based UNEs, and the BellSouth Cost
3 Calculator (“BSCC”) used to develop costs based on these investments. The objective of
4 this evaluation has been to determine if the BellSouth cost models can be used to develop
5 an accurate measure of the forward-looking economic cost for certain of the rate elements
6 at issue in this proceeding.

7 2. Evaluate the inputs used and assumptions made by BellSouth cost analysts
8 when running the BSTLM and BSCC. The objective of this evaluation has been to
9 determine if the inputs and assumptions used are those that, when entered into the
10 BellSouth cost models, will yield an accurate measure of the TELRIC of the rate elements
11 at issue.

12 3. Where necessary, develop alternative values for BellSouth inputs and
13 assumptions that, when entered into the BellSouth cost models, will yield an output that
14 is consistent with TELRIC. These inputs include material prices and engineering
15 assumptions in the BSTLM, and loading and expense factors in the BSCC.

16 4. Using alternative inputs when necessary, re-run the BellSouth cost models to
17 produce results that are an appropriate basis for TELRIC-compliant rates. As described
18 later in my testimony, engineering assumptions, other BSTLM inputs and
19 loading/expense factors developed by myself and others were used to produce the final
20 cost results.

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1 5. Review the development and basis for the proposed rates for certain other
2 BellSouth UNEs. I have specifically been asked to look at the proposed recurring rate for
3 switch features and the proposed nonrecurring rates for UNE loops used to provide xDSL
4 services.

5 Q. PLEASE EXPLAIN HOW YOUR TESTIMONY IS ORGANIZED.

6 A. My testimony is organized into six sections. Section 1 describes the underlying cost
7 concepts that I have applied in my analysis. Section 2 describes my experience with the
8 BSTLM and the BSCC, explains their potential use and limitations, and describes how
9 they can be used – with the necessary modification to inputs and assumptions – to
10 develop forward-looking economic costs consistent with the FCC rules. Section 3
11 describes in detail my development of the proposed recurring costs for various types of
12 unbundled loops and subloops. Section 4 presents a review of BellSouth’s proposal for
13 new rates for the vertical features of a switch, and describes the development of rates for
14 features that permit BellSouth to recover all relevant costs. Section 5 describes the rates
15 that should apply when a CLEC requests cageless collocation from BellSouth. Section 6
16 provides the basis for the cost of capital and depreciation assumptions that I have utilized
17 to develop recurring costs.

18 Q. ARE YOU PRESENTING A RATE PROPOSAL IN YOUR TESTIMONY?

19 A. Yes. Exhibit DJW-2 presents recurring (monthly) rates for UNEs based on the results of
20 the cost analysis that I have conducted for this proceeding.

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Section 1: Fundamental Costing Concepts that Underlie the Analysis

Q. WHAT COSTING METHODOLOGY DO YOU RECOMMEND BE USED TO
DEVELOP RATES FOR UNBUNDLED NETWORK ELEMENTS?

A. The Commission should require the use of a forward-looking economic cost methodology
consistent with the FCC rules.

Q. BELLSOUTH WITNESS CALDWELL ARGUES THAT BECAUSE OF THE EIGHTH
CIRCUIT COURT'S DECISION TO VACATE § 51.505(B)(1), A NEW AND
DIFFERENT COST METHODOLOGY SHOULD NOW BE CONSIDERED. DO YOU
AGREE?

A. Not at all. As an initial matter, Ms. Caldwell provides at pages 7-8 her interpretation of
the consequences of the Eight Circuit Court's decision. It should be noted, however, that
implementation of the Eighth Circuit's ruling has been stayed pending review by the
United States Supreme Court. Based on the current legal status of the ruling, there is no
reason to assume a change in methodology at this time.

More importantly, however, there is no reason to assume that a decision by the
Supreme Court to uphold the Eighth Circuit's decision would require a change in the
BellSouth cost studies. Ms. Caldwell suggests that if § 51.505(b)(1) is finally vacated, it
will be either necessary or appropriate to change the methodology that underlies the
BellSouth cost models. While making this broad suggestion (and warning that decisions

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reached in this proceeding may need to be revisited), Ms. Caldwell does not provide any concrete example of why such a change in methodology would be justified.

Q. IF THE EIGHTH CIRCUIT’S RULING IS UPHELD, WILL IT THEN BE PERMISSIBLE TO CONSIDER THE CHARACTERISTICS OF BELL SOUTH’S EMBEDDED NETWORK WHEN CALCULATING THE RELEVANT COST OF UNES?

A. No. Pending a ruling by the Supreme Court, § 51.505(b)(1) remains in effect. Equally importantly, § 51.505(d) remains in full effect and has not been challenged. § 51.505(d) lists four factors that *may not be considered* when calculating the relevant cost of a UNE. The first factor listed by the FCC is embedded costs.

It is important to note that this rule goes beyond a simple statement that the rates for UNEs may not be based on embedded costs. It states that embedded costs *may not be considered*. This is a much higher standard that has clear implications for how BellSouth performs its cost studies. For example, Ms. Caldwell refers generally to a “hypothetical network,” and suggests that if the Eighth Circuit’s ruling is upheld the characteristics of BellSouth’s embedded network may be used to develop costs and rates for UNEs. When making this suggestion, Ms. Caldwell is ignoring the fact that – whether or not the Eighth Circuit ruling is upheld – the characteristics of BellSouth’s embedded network *may not be considered*.

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1 Q. MS. CALDWELL (PAGE 8) SUGGESTS THAT, IN LIGHT OF THE EIGHTH
2 CIRCUIT COURT'S RULING, THE RESULTS OF BELL SOUTH'S COST STUDIES
3 SHOULD BE CONSIDERED CONSERVATIVE. DO YOU AGREE?

4 A. No. As described above, there is no reason to assume that the FCC's cost standard will
5 change and, even if it does, there is no reason to assume that it will then be appropriate to
6 alter BellSouth's cost study methodology in any way.

7 Ms. Caldwell suggests that the Commission avoid accepting any changes to
8 BellSouth's inputs and assumptions that may be proposed by other parties. The rationale
9 for this statement appears to be that since BellSouth's reported costs are already "below"
10 what she believes that the Eighth Circuit stated is appropriate, the Commission should
11 permit BellSouth some flexibility in its choice of inputs in order to "fudge" the results
12 upward.

13 In reality, BellSouth has provided absolutely no factual basis for a suggestion that
14 the existing cost results are "below" the level that the Eighth Circuit believes to be
15 appropriate,¹ and no basis for the Commission to allow BellSouth to make up the
16 difference with inflated inputs to its studies. As I will explain in more detail in the
17 remaining sections of my testimony, there are well-founded reasons for the Commission
18 to question – and require changes to – certain of BellSouth's inputs and assumptions.
19 The Commission should not place less weight on the need for these input changes based

¹ Such a position presupposes that the Eighth Circuit Court has developed an estimate of the level of costs that it considers to be "appropriate." There is absolutely no evidence that this is the case.

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1 on an unfounded suggestion that BellSouth's costs are otherwise understated in some
2 way.

3 Q. DOES BELLSOUTH HAVE THE INCENTIVE TO PROPOSE RATES FOR UNES
4 THAT WILL DELAY OR PREVENT THE DEVELOPMENT OF COMPETITION FOR
5 THE SERVICES THAT IT OFFERS?

6 A. Of course. As an incumbent with nearly 100% market share for most local exchange
7 services, BellSouth is highly motivated to do what it can to have UNE rates adopted that
8 will permit only minimal competition. I am in no way suggesting that is at all
9 inappropriate for BellSouth to have such motivation; any competitor that seeks to
10 foreclose market entry will be motivated to behave in this way.

11 Such a motivation manifests itself in two ways with regard to the pricing of
12 UNES. First, BellSouth has the incentive to broadly overstate the level of costs (and
13 therefore rates) for all UNES. Second, BellSouth has the incentive to use the flexibility
14 inherent in the costing process to shift costs from one rate element to another in a way
15 that supports its competitive objectives and interests.

16 In Docket No. 97-374-C, BellSouth asked the Commission to create a disconnect
17 between UNE costs and rates by including the Residual Recovery Requirement ("RRR").

18 The RRR served to close the gap between the results of forward-looking economic cost
19 studies and BellSouth's estimate of its embedded costs. The Commission wisely chose
20 not to permit BellSouth to include this "closure factor" in its rates. Because this

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Commission² wisely chose to reject this add-on to the cost study results when establishing rates, BellSouth is now in a slightly different position. If it is clear that rates will be set at the level of forward-looking economic costs³ with no permissible add-on, any desire by BellSouth for strategic rates must be accomplished through strategic changes to the calculated cost.

Q. YOU REFERRED TO THE “FLEXIBILITY INHERENT IN THE COSTING PROCESS.” PLEASE EXPLAIN.

A. When discussing the details of a cost study, it is easy to lose sight of the fact that costing is inherently a “messy” process. At multiple points throughout the development of the cost for a particular UNE, it is necessary to make “judgment calls” regarding how a certain element of a cost should be handled. The cost of shared equipment or buildings may be allocated based on dollars of investment, for example, or inflation may be accounted for through the application of factors developed for this purpose. Many of these “judgment calls” have been standardized through repetition and are given little thought by the cost analyst. The danger here is twofold: first, the arbitrary nature of some of these decisions, even though they may have been made consistently for many years, can have competitive implications not envisioned when the process was first developed. Second, the flexibility to make these judgment calls creates an opportunity for mischief;

² While BellSouth proposed the RRR in each of its states, it was unsuccessful in having it adopted by any state regulator.

³ The phrase “forward-looking economic costs” as used here is intended to mean the sum of properly calculated direct, shared, and common costs.

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1 the incumbent LEC conducting the cost study has the chance to allocate costs in a way
2 that will serve its competitive interests.

3 The combination of BellSouth's motivation to limit competitive entry, combined
4 with the opportunity to direct cost results toward a particular rate objective, creates the
5 need for the Commission to carefully consider these decision points in the costing process
6 and to assess the decision that has been made. In some cases, it is likely that the
7 traditional way of handling certain costs now has unintended (but very real)
8 consequences. In others, it is possible that BellSouth has utilized this costing flexibility
9 to provide a basis for meeting competitive rate objectives. The intent, however, is
10 ultimately irrelevant if the result is an outcome that artificially limits competitive entry
11 for a service, subset of services, or all services.⁴

12 Q. PLEASE PROVIDE EXAMPLES OF HOW THESE COSTING "JUDGMENT CALLS"
13 HAVE IMPACTED THE COST RESULTS.

14 A. As I explain in detail in Section 3 of my testimony, BellSouth cost analysts have made
15 several decisions that have consequences for both the costs and rates of UNEs. For
16 example, BellSouth's use of inflation factors (what it refers to as "TPIs," or telephone
17 plant index) combined with a nominal cost of capital double counts for inflation. The
18 method used by BellSouth has been followed for several years, but has only recently been

⁴ For this reason, it is not necessary to debate whether BellSouth intended for certain rate consequences to follow from decisions made during its costing process. Instead, the primary effort should be to determine if such consequences have occurred and how they may be corrected.

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1 closely scrutinized. Similarly, BellSouth's use of several types of loading or "in-plant"
2 factors distort cost results by allocating certain shared costs based on the dollars of
3 investment calculated for the direct cost. This process has also been in place for some
4 time, and in the previous environment has had few competitive implications. This
5 process may now be driving cost and rate outcomes that delay or prevent the deployment
6 of advanced services. A recent decision by BellSouth to allocate certain shared costs
7 based on "DS0 equivalents" also serves to artificially inflate the cost of certain UNEs.
8 BellSouth's decision to estimate network structure costs (telephone poles and conduit)
9 based on a factor approach, rather than an explicit calculation, can also cause the
10 relationship of the costs calculated for various UNEs to be distorted. Any such distortion,
11 whether intended or not, can inappropriately serve BellSouth's competitive objectives by
12 delaying or preventing the development of competition, thereby harming South Carolina
13 ratepayers.

14 Q. WHAT ARE THE IMPLICATIONS OF THIS OBSERVATION?

15 A. Because it is now clear that UNE rates must equal the total forward-looking economic
16 cost calculated for a particular UNE with no add-on (e.g. the RRR), strategic pricing is
17 now strategic costing. It is more important than ever for the Commission to identify the
18 points in the costing process where BellSouth cost analysts have the flexibility to make
19 judgment calls and to closely scrutinize the decisions that are made.

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1 Q. IS THERE AN APPROACH TO COSTING THAT CAN HELP TO MINIMIZE THE
2 POTENTIAL FOR STRATEGIC COSTING AND ITS IMPLICATIONS?

3 A. Yes. The approach that minimizes the potential for the “judgment calls” (inherent in the
4 costing process) to have competitive consequences has historically been called “a loop is
5 a loop.” The principle behind this approach is straight-forward: except in those cases of a
6 service which requires additional equipment to function, loop costs should be developed
7 through a costing process that is indifferent to how the loop will ultimately be used. Such
8 a process is competitively neutral and at least as accurate as a process in which loops are
9 costed in different ways depending on the service they will ultimately be used to provide.

10 Q. AT PAGE 8 OF HIS TESTIMONY, BELL SOUTH WITNESS STEGEMAN STATES
11 THAT THE BSTLM DEVELOPMENT TEAM ASSUMED THAT THE COST MODEL
12 THEY PRODUCED MUST *NOT* ASSUME THAT A LOOP IS A LOOP. WHAT IS
13 YOUR RESPONSE?

14 A. Some of my disagreement with Mr. Stegeman appears to be a matter of semantics, while
15 the remainder appears to be substantive. Mr. Stegeman first states that the loop model
16 used by BellSouth to calculate UNE costs must “reflect the diversity of services and
17 UNEs offered by BST.” Such a statement is non-controversial, and has implications for
18 the selection of the “scenario” to be utilized in the BSTLM (the selection of an
19 appropriate scenario is discussed in Section 2). I also agree that costs that reflect network
20 elements that are specific to a given service should be specifically considered in the cost

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1 of that service. However, Mr. Stegman's further testimony combined with BellSouth's
2 cost study assumptions indicate a broader area of disagreement. This area of
3 disagreement specifically relates to the calculation of varying costs for a given facility
4 depending on the service being provided. There is absolutely no basis for treating a given
5 network facility differently in a cost study depending on the service that it will be used to
6 provide. Such differential treatment can occur if a traditional process is blindly used
7 without reassessment or if a cost analyst has the ability to make assumptions on a service-
8 specific basis (especially if the cost analyst has the ability to change the assumptions
9 depending on the service being studied).

10 In contrast, the "loop is a loop" approach (which has been required by other state
11 regulators at various times) -- if applied correctly -- is competitively neutral, at least
12 equally accurate, and mitigates the possibility of strategic costing.

13 Q. DO THE COST RULES SET FORTH BY THE FCC SUPPORT THE USE OF A LOOP
14 IS A LOOP APPROACH?

15 A. Yes. The foundation of the FCC's rules is the concept that costs should be calculated at
16 the level of network functions rather than services.⁵ If this principle is applied, it is not
17 necessary for the cost analyst to begin the study with a particular service in mind (in fact,
18 such a service, rather than network element, orientation cannot be used). The analyst can
19 (and must) instead focus on developing costs for network facilities and functions that can

⁵ The rules related to the application of this principle are not a part of the stayed decision of the Eighth Circuit Court currently being reviewed by the United States Supreme Court.

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1 then be utilized by multiple services. Focusing on basic network functions rather than
2 services mitigates the possibility that the costing process will become results driven.

3 Q. HOW SHOULD AN EVALUATION OF THE BELL SOUTH COST STUDIES BE
4 CONDUCTED?

5 A. An effective evaluation of the BellSouth cost studies (and underlying cost models)
6 requires consideration of the following fundamental requirements:

7 1. The cost model must be designed to accomplish the conceptually correct
8 objective. In the context of developing costs consistent with the FCC rules, this means
9 developing costs based on a forward-looking design rather than BellSouth's embedded
10 network.

11 2. The model must be run in a way that generates meaningful results. Where a
12 cost model offers a choice, the cost analyst must choose the option that will generate
13 costs consistent with the objective at hand.

14 3. The engineering constraints in the model must reflect industry practice and be
15 consistent with the cost object of the study. Engineering assumptions directly impact
16 network costs and should be evaluated in light of the cost study objectives.

17 4. Decisions regarding how indirect costs will be treated should be both
18 reasonable and competitively neutral. As described above, certain decisions by BellSouth
19 cost analysts – intentional or not -- have distorted costs in a way that has competitive
20 implications.

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1 5. Other cost study inputs must be consistent with the requirements of the FCC
2 rules. Inputs that fail to reflect efficient operation, that link the calculation of forward-
3 looking costs to embedded costs, or that result in the double-counting of certain costs,
4 must be adjusted.

5 By stating these fundamental principles, it is my intention to describe a set of non-
6 controversial requirements that can provide a useful framework for the evaluation of
7 BellSouth's cost models. While I expect BellSouth to potentially disagree with my
8 conclusions regarding whether the BellSouth cost studies, as presented, meet these
9 requirements, it is my hope and expectation that a consensus can be reached regarding the
10 validity of the principles themselves.

11 An evaluation of the BSTLM and BSCC with regard to requirements 1 and 2 set
12 forth above is presented in Section 2 of my testimony. An evaluation of the BSTLM and
13 BSCC with regard to requirements 3, 4, and 5 is presented in Section 3.

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Section 2: Review of the BSTLM and BSCC Models

Q. PLEASE DESCRIBE YOUR EFFORTS TO EVALUATE THE BSTLM AND BSCC.

A. To date, I have spent over 200 hours in my attempt to evaluate the BSTLM and BSCC. The BSCC is simply a slightly modified version of the TELRIC Calculator previously presented by BellSouth, and its use has not been problematic. In contrast, the BSTLM is a brand new model that has presented several difficulties.

Q. WHAT IS YOUR EXPERIENCE WITH THE BSTLM AND BSCC?

A. I have reviewed the BSCC and its predecessor, the TELRIC Calculator, in a number of previous proceedings. I have reviewed the BSTLM in similar proceedings in Florida, Louisiana, and Alabama.

Q. HAVE YOUR ATTEMPTS TO USE AND ANALYZE THE BSTLM BEEN TROUBLE-FREE?

A. Unfortunately, no. Competitive Coalition witness Wilsky describes in detail the problems that we have encountered and how they have been resolved (if such resolution has been possible).

Q. IS IT YOUR TESTIMONY THAT THE PROBLEMS THAT YOU HAVE EXPERIENCED ARE SUFFICIENT IN SCOPE OR MAGNITUDE TO CAUSE THE COMMISSION TO REJECT THE USE OF THE BSTLM TO DEVELOP COSTS FOR LOOP-BASED UNES?

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1 A. No. I do believe, however, that the problems outlined above are sufficient to cause the
2 Commission to qualify its acceptance of the BSTLM, at least for now. Based on this
3 qualified acceptance, I believe that it is possible to utilize the BSTLM to develop costs
4 for loop-based UNEs that comply with the FCC rules *if the model is run with the correct*
5 *scenarios, assumptions, and inputs.*

6 Q. IN SECTION 1 OF YOUR TESTIMONY YOU STATED THAT, AS A
7 FUNDAMENTAL REQUIREMENT, A COST MODEL MUST BE DESIGNED TO
8 ACCOMPLISH THE CONCEPTUALLY CORRECT OBJECTIVE. DOES THE
9 BSTLM MEET THIS REQUIREMENT?

10 A. If the model actually functions as described by Mr. Stegeman and the supporting
11 documentation (as described above, I have been unable to confirm that this is the case),
12 the answer is “yes, if the correct scenarios are utilized.”⁶

13 The BSTLM overcomes the primary shortcoming of BellSouth’s previous loop
14 model (used in Docket No. 97-374-C) by replacing a process of sampling the embedded
15 network with a process of developing an efficient network design based on geographic
16 and demographic information. BellSouth’s previous loop model developed a proxy of
17 “forward-looking” costs by sampling a database of embedded loop designs and then
18 engaging in a manual redesign of those facilities to implement some forward-looking
19 assumptions. As I described in my rebuttal testimony in Docket No. 97-374-C, such a

⁶ I will describe the scenario selection process later in this section.

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1 process is inherently flawed and has numerous shortcomings. Mr. Stegeman lists certain
2 limitations of a sample-based cost model at page 4 of his testimony, and goes on to
3 describe (pages 5-9) why BellSouth chose to develop an entirely new model instead of
4 using an existing model as a starting point.⁷

5 The new and improved BellSouth approach, as implemented in the BSTLM, uses
6 a process of network development based on geo-coded data containing the location of
7 customers, wire centers, and exchange boundaries. The model then, according to Mr.
8 Stegeman, builds the network to those customers. This process represents a significant
9 step in the right direction.

10 In addition, if the model documentation and Mr. Stegeman's testimony are
11 accurate in this regard, the BSTLM corrects for a number of network design errors that
12 caused the BCPM to overstate the amount of certain facilities that were required.⁸

13 Our overall conclusion is that the BSTLM, at least when the correct scenarios are
14 used, is designed to accomplish the conceptually correct objective. This represents a
15 significant improvement over the previous BellSouth loop model.

16 Q. IN SECTION 1 OF YOUR TESTIMONY, YOU STATED THAT AS A
17 FUNDAMENTAL REQUIREMENT A COST MODEL MUST BE RUN IN A WAY

⁷ Interestingly, Ms. Caldwell continues to maintain (p.15) that the sampling process previously used by BellSouth is both accurate and appropriate for the development of certain loop costs.

⁸ As described previously, due to time constraints and limited access to the source code, I have been unable to verify that this is the case. For purposes of this proceeding, I am accepting on faith that certain portions of the model do what BellSouth says they do.

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1 THAT GENERATES MEANINGFUL RESULTS. DOES THE BSTLM MEET THIS
2 REQUIREMENT?

3 A. The BSTLM can meet this requirement if the correct scenario is utilized.

4 Q. PLEASE DESCRIBE THE SCENARIOS AVAILABLE IN THE BSTLM, AND
5 EXPLAIN WHY THEY ARE IMPORTANT.

6 A. BellSouth has created five different sets of assumed network constraints: BST2000,
7 Combo, Copper Only, BST2000-ISDN, and Combo-ISDN. BellSouth refers to these sets
8 of constraints as scenarios, and utilizes different scenarios to develop costs for different
9 rate elements.

10 While the BSTLM is designed to develop a set of forward-looking network
11 characteristics based on a selection of the most efficient technology (as is required by the
12 FCC rules, BellSouth has created these scenarios to constrain the network design
13 assumed by the model. Each scenario limits the BSTLM in different ways.

14 The Combo scenario is the only scenario that permits the BSTLM to do what it
15 has apparently been designed to do: start with geo-coded data regarding customer, wire
16 center, and exchange boundary locations, combine that data with accepted engineering
17 practices, and develop a set of forward-looking network characteristics. The Combo
18 scenario permits the BSTLM to utilize both copper and fiber facilities, just as BellSouth's
19 engineering practices indicate should be done on a forward-looking basis. The Combo
20 scenario also assumes the use of integrated digital loop carrier systems ("IDLC"), and

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1 specifically next generation digital loop carrier systems (“NGDLC”), where these systems
2 are the most efficient means of providing the feeder portion of the loop. The use of IDLC
3 and NGDLC is, again just what BellSouth’s engineering practices indicate should be done
4 on a forward-looking basis. In summary, the use of the Combo scenario permits the
5 BSTLM to calculate a response to the following question: “what is the forward-looking
6 economic cost to BellSouth of providing specific UNEs, assuming actual locations of
7 customers and wire centers, BellSouth’s engineering practices, and a network that will
8 permit BellSouth to offer the mix of UNEs and services?” This is the conceptually
9 correct question to pose in order to develop accurate and appropriate costs for all of the
10 UNEs at issue in this proceeding, and the only question that will result in the
11 development of costs that comply with the FCC rules.

12 The BST2000 scenario is identical to the Combo scenario, except that it assumes
13 that IDLC and NGDLC will not be used on a forward-looking basis. Instead, BellSouth
14 requires the BSTLM to assume the use of only obsolete Universal Digital Loop Carrier
15 (“UDLC”) systems. The use of this scenario is puzzling in light of Mr. Milner’s
16 testimony (pp. 3-7) that describes NGDLC in some detail, identifies it as the forward-
17 looking architecture in BellSouth’s network, and describes its technical and economic
18 advantages. Mr. Stegeman states (p. 7) that it was an objective of the BSTLM
19 development team to ensure that the model calculated cost results “that accurately reflect
20 BellSouth’s engineering practices.” Mr. Milner presents a convincing case that

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1 BellSouth's engineering practices properly assume the use of NGDLC on a forward-
2 looking basis. BellSouth's costs analysts, however, have elected to hamstring the
3 BSTLM with a scenario that prevents the use of the technical and economic advantages
4 touted by Mr. Milner. The use of this artificial constraint on forward-looking network
5 characteristics causes UNE costs to be inflated because it assumes unnecessary
6 conversion of a digital signal to an analog signal at the BellSouth wire center.

7 BellSouth's only justification for the use of this scenario is the stated assumption
8 that such a constraint is necessary to "reflect the fact that all UNE loops (other than those
9 combined with a port in the Combo scenario) served via fiber feeder based digital loop
10 carrier (DLC) system must operate on a non-integrated basis since these unbundled loops
11 are not terminated directly into the BellSouth switch."⁹ Fortunately for South Carolina
12 ratepayers, this assumed "fact" is simply incorrect. NGDLC systems support the use of
13 multiple switches, which makes it possible for some loops provided via the NGDLC to
14 terminate directly on BellSouth's switch while other loops terminate directly on the
15 switch of a CLEC (or on facilities leading directly to that switch).

16 Depending on the vendor, an NGDLC can provide GR-303 interfaces to from
17 three to five switches. Vendor information describing the capabilities of some of these
18 systems is attached as Exhibit DJW-3. The cost consequences of this capability are
19 significant. With NGDLC, the signal can be converted from analog to digital at the

⁹ BellSouth explicitly puts forth this assumption in the "Scenario" section of the BSTLM documentation.

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1 remote terminal ("RT") and remain digital straight through to either BellSouth's or a
2 CLEC's switch. In contrast, a model constraint that assumes away all IDLC systems
3 (including NGDLC) requires the assumption of an additional digital to analog conversion
4 in the BellSouth wire center, followed by a conversion from analog back to digital before
5 the signal reaches the CLEC switch. This technically unjustified constraint inflates the
6 results of the cost model and (where implemented) unnecessarily degrades signal quality.

7 In summary, the use of the BST2000 scenario permits the BSTLM to calculate a
8 response to the following question: "what is the forward-looking economic cost to
9 BellSouth of providing specific UNEs, assuming actual locations of customers and wire
10 centers, but ignoring a relevant component of BellSouth's engineering practices?"

11 The third (and strangest) scenario is Copper Only. This scenario alters
12 BellSouth's engineering practices even further, by eliminating the use of all fiber feeder
13 facilities and assuming that only copper wire will be used to provision local loops
14 regardless of length (BellSouth resets the maximum copper distance from 12,000 to
15 1,000,000 feet). This scenario results in the calculation of costs that (1) are inflated, (2)
16 are conceptually meaningless, and (3) directly violate the FCC rules.

17 First, this highly artificial constraint ignores the economies of fiber feeder and
18 DLC systems touted by Mr. Milner. Second, it assumes a network built to offer a single
19 service (xDSL) while ignoring the mix of other services provisioned by BellSouth over its

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1 local network. Third, by ignoring these other services, the Copper Only scenario violates
2 §51.511 (a) of the FCC rules.

3 BellSouth attempts to justify the use of this highly constrained scenario by arguing
4 that BST2000 and Combo scenarios limit copper loops to 12,000 feet, the use of this
5 scenario is necessary to meet the demand of CLECs for xDSL-compatible loops longer
6 than 12,000 feet. In reality, the 12,000 foot copper limit is not an engineering constraint
7 or an inherent constraint in the BST2000 or Combo scenarios, but is in fact a user-
8 adjustable input. By adjusting this value in the Combo scenario, the BSTLM can
9 calculate cost results with minimal deviation from BellSouth engineering principles while
10 retaining consistency between the cost study and CLEC requests for xDSL-compatible
11 loops longer than 12,000 feet.

12 In addition, use of the Copper Only scenario is based on the implicit assumption
13 that xDSL-compatible loops can only be provisioned over all copper facilities, and that
14 the use of fiber feeder and/or digital loop carrier systems preclude the use of the loop to
15 provide xDSL. This is simply not the case. In summary, the use of the Copper Only
16 scenario permits the BSTLM to calculate a response to the following question: "what is
17 the forward-looking economic cost to BellSouth of providing specific UNEs, assuming
18 actual locations of customers and wire centers while ignoring BellSouth's engineering
19 practices, the existence of fiber feeder and the existence of DLC systems, and assuming a
20 network designed around the provisioning of a single service while ignoring the mix of

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1 other UNEs and services provisioned by BellSouth via its local network?" When run
2 using this scenario, the BSTLM creates numbers that are a response to a conceptually
3 meaningless question.

4 The BST2000-ISDN scenario and Combo-ISDN scenarios are identical to the
5 BST2000 and Combo scenarios, respectively, except that they include the equipment
6 necessary for existing BellSouth POTS and ISDN customers to become ISDN UNE
7 customers. As a result, the BST2000-ISDN scenario suffers from the same problems as
8 the BST2000, while the Combo-ISDN, like the Combo scenario, avoids these problems.

9 Q. WHAT IS YOUR RECOMMENDATION REGARDING THE USE OF THE VARIOUS
10 BELLSOUTH SCENARIOS IN THE BSTLM?

11 A. For the reasons described above, I believe that the Combo and Combo-ISDN scenarios
12 are the only options that can produce cost results that are compliant with the FCC rules. I
13 have utilized these scenarios to develop the costs and rates that I am proposing in this
14 proceeding.

15 Q. IS THE TESTIMONY OF BELLSOUTH WITNESSES CONSISTENT WITH THE USE
16 OF THE BST2000, BST2000-ISDN, AND COPPER ONLY SCENARIOS?

17 A. No. As described above, Mr. Milner's description of NGDLC does not support use of the
18 BST2000 and BST2000-ISDN scenarios, which assume away its capabilities. Equally
19 significantly, the use of the BST2000, BST2000-ISDN, and Copper Only scenarios is
20 inconsistent with the testimony of Ms. Cox and Ms. Caldwell. As described in Section 1

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1 of my testimony, Ms. Caldwell argues that the decision by the Eighth Circuit Court to
2 vacate § 51.505 (b) (1) -- if upheld -- should result in a move away from hypothetical
3 assumptions regarding BellSouth's forward-looking network characteristics. BellSouth
4 argues that the Commission should reject any attempt to base prices on a network
5 standard that is even more hypothetical than the standard already reflected in the
6 BellSouth cost models." In light of this position, it is difficult to understand why
7 BellSouth has insisted on the use of the BST2000, BST2000-ISDN, and Copper Only
8 scenarios. It certainly cannot be argued that these scenarios -- which ignore BellSouth
9 engineering practices, ignore the existence of fiber feeder facilities and DLC systems
10 (both in extensive "actual" use by BellSouth), or that assume copper can economically be
11 placed to serve effectively unlimited distances are *less* hypothetical than the use of a
12 scenario that acknowledges BellSouth's engineering practices and assumes the use of
13 facilities and equipment actually in use by BellSouth today.

14 BellSouth witnesses bemoan the use by BellSouth of the FCC's efficient network
15 standard and argue that costs have been understated as a result. If BellSouth believes that
16 its cost results, as presented in this proceeding, are "too hypothetical" in light of the
17 ruling of the Eighth Circuit Court, a good first step away from any unnecessary
18 "hypotheticals" would be to adopt the use of the Combo scenario for the development of
19 costs for UNEs.

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Section 3: Development of TELRIC Costs for Unbundled Loops

Q. PLEASE DESCRIBE THE METHOD THAT YOU HAVE USED TO DEVELOP RECURRING RATES FOR LOCAL LOOP-BASED UNES?

A. I have utilized the BSTLM Combo scenario and have made changes to certain model inputs. As described in this section, these input changes are necessary. First, these changes ensure that traditional methods of assigning indirect costs do not unnecessarily distort the results. Second, they eliminate an assignment of indirect costs that overstates the cost of certain UNEs. Finally, these changes avoid double-counting certain costs.

Q. MS. CALDWELL URGES THE COMMISSION TO AVOID MAKING ANY CHANGES TO THE INPUTS AND ASSUMPTIONS UTILIZED BY BELL SOUTH IN ITS COST STUDIES. IN YOUR REVIEW OF THE BSTLM, HAVE YOU UNCOVERED INFORMATION THAT SUGGESTS THAT ADJUSTMENTS ARE ALMOST CERTAIN TO BE NECESSARY?

A. Yes. In fact, I would argue that the opposite is true: available evidence suggests that the Commission should use caution when evaluating the inputs and assumptions made by BellSouth.

Like most models, the BSTLM/BSCC combination develops costs in three primary steps. First, the models determine (in the case of BSTLM by considering geo-coded locations of customers, wire centers, and exchange boundaries and forward-looking network design principles) the quantity of network facilities and equipment that

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1 will be needed to provide the mix of local services in a given area. Second, the models
2 take this quantity and develop investments based on assumptions about the acquisition
3 and placement costs of various types of facilities and equipment. Indirect investment may
4 also be assigned at this stage. Third, these investments are converted to annual costs
5 through a process of expense assignment (expense factors and annual charge factors).

6 The final cost result is a function of all three steps, and a change to any one of
7 these steps should create a change in the final result of a predictable direction and
8 magnitude. For example, a reduction in the amount of network facilities and equipment
9 needed to provide service in the area would be expected to have a roughly one to one
10 impact on the final result (all else equal, a 10% reduction in the amount of facilities found
11 to be necessary should result in a 10% decrease in the final result). Changes in
12 acquisition costs would have an impact of a predictable direction, but less predictable
13 magnitude. Changes in expense levels would likewise have a predictable direction but
14 less predictable magnitude. Changes in the method used to assign indirect costs could
15 cause the relationship between the costs calculated for various rate elements to change,
16 but would be unlikely to change the total cost calculated.

17 When evaluating a new cost model, it is useful to compare the values for each step
18 in the process and the final cost result to those of other models that are designed to
19 calculate costs for the same rate elements. To that end, I have attempted to conduct such

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1 an analysis by comparing the results of the BSTLM with the results of the BCPM and
2 HAI models, both of which have previously been presented to this Commission.

3 Q. WHAT DOES YOUR REVIEW OF THESE THREE MODELS INDICATE?

4 A. I have compared the results of the HAI, BCPM, and BSTLM models in Florida and
5 Louisiana. Because of the form of the outputs created by the BSTLM, this analysis is
6 extremely time consuming and expensive to perform. Results from undertaking this
7 process in Florida and Louisiana showed consistent results that I believe would hold true
8 in all states. For these reasons, this analysis was not duplicated for South Carolina.

9 The BSTLM (by using geo-coded customer data and actual road routing data at a
10 degree of accuracy beyond that used in the other two models) develops a local network
11 design that requires smaller quantities of facilities and equipment than either the BCPM
12 or the HAI models. If the other investment and expense inputs have remained roughly
13 constant since the BCPM results¹⁰ were developed, it is reasonable to expect that the final
14 cost result will have declined by approximately the same percentage. If the other
15 investment and expense inputs have undergone a net decrease since the BCPM results
16 were developed, it is reasonable to expect that the final cost result will have declined by a
17 greater percentage than the percent decrease in facilities and equipment required.

18 This expected relationship has not materialized, however. Instead, this analysis
19 indicates that the results of the BellSouth cost study have not declined by the same

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1 amount as the decline in the quantity of the underlying network facilities predicted by the
2 BSTLM versus the BCPM. Acquisition costs for many materials have decreased over the
3 intervening period, as have BellSouth's expenses (labor costs are the exception to the
4 declining cost nature of the telecommunications industry, and may have increased during
5 the period). On the whole, it is reasonable to assume that the inputs and assumptions to
6 steps two and three have remained constant or have decreased slightly. As a result, the
7 percent decrease in the cost results from the BCPM to the BSTLM should be equal to or
8 greater than the percent decrease in the quantity of network facilities and equipment
9 required. The fact that this expected change has not occurred underscores the importance
10 of a thorough review of BellSouth's inputs and assumptions. My conclusion is the
11 opposite of that of the BellSouth witnesses: the Commission should exercise caution
12 before accepting the BellSouth inputs and assumptions without alteration. Put simply, a
13 more efficiently designed network requiring fewer facilities should cost less than a less
14 efficiently designed network with more facilities. Because the cost studies produced by
15 BellSouth in this proceeding have not produced this expected result, the Staff and
16 Commission should be even more diligent when examining BellSouth's proposed inputs
17 to its cost models.
18

¹⁰ I have focused specifically on the BCPM results because the inputs and assumptions used to convert the network design into costs were those of BellSouth's cost analysts and the Commission consultant and were approved by the Commission.

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1 Q. IN SECTION 1 OF YOUR TESTIMONY, YOU STATED THAT AS A
2 FUNDAMENTAL REQUIREMENT THE ENGINEERING CONSTRAINTS IN THE
3 MODEL MUST REFLECT INDUSTRY PRACTICE AND MUST BE CONSISTENT
4 WITH THE COST OBJECT OF THE STUDY. ARE THE ENGINEERING
5 CONSTRAINTS IN THE BSTLM CONSISTENT WITH THIS REQUIREMENT?

6 A. Many of the BellSouth assumptions are consistent with this principle, but others require
7 adjustment. Specifically, I have made the following input changes:¹¹

8 (1) changed the "cutover" point for the use of extended range cards from 14,800 feet to
9 13,000 feet,

10 (2) changed the average length from floor to floor in a building from 25 to 11 feet,

11 (3) changed the DLC Remote terminal fill from 70% to 90% and the Feeder Fiber Fill
12 from 75% to 100% (this change yields an effective fill of 50%),

13 (4) changed the copper and DLC limits (copper "soft" limit from 12,000 to 15,999,
14 copper "hard" limit from 13,000 to 16,799,¹² DLC "soft" limit from 12,000 to 15,999
15 feet, and DLC "hard" limit from 18,000 to 16,799),

16 (5) changed the DLC minimum line limit from 10 to 1800,

17 (6) changed the fiber nodes per ring from 4 to 8,

¹¹ All of the changes to BellSouth's inputs and assumptions have been compiled in a table showing the input, BellSouth value, the restated value, and the rationale for the change. This table is attached as **Exhibit DIW-4**

¹² By changing the copper limits I have allowed the BSTLM to assume longer copper loops. This eliminates BellSouth's stated rationale for using the Copper Only scenario (i.e. that copper loops limited in other scenarios to 12,000 feet) while remaining consistent with accepted industry engineering practices.

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1 (7) changed the 24 to 26 gauge crossover point (when the customer is served by a loop
2 that is copper from the central office) from 12,000 to 16,800 feet and the 24 to 26 gauge
3 crossover point (when the copper portion of the loop is within the CSA) from 9,000 to
4 16,800 feet),

5 (8) changed the minimum pairs per housing unit from 2.0 to 1.5 and minimum pairs per
6 business from 6 to 3, and

7 (9) changed the minimum fiber optic cable size from 12 to 6 strands.

8 A complete listing of changes to BSTLM inputs is contained in Exhibit DJW-4.

9 Q. HAVE THE CHANGES IN THE ENGINEERING INPUT VALUES DESCRIBED
10 ABOVE BEEN MADE IN CONSULTATION WITH OUTSIDE PLANT ENGINEERS?

11 A. Yes. Like most BellSouth costs analysts (including Ms. Caldwell), I am not an outside
12 plant engineer (though I do have considerable experience applying engineering principles
13 to financial problems). The adjustments that I have made to engineering inputs are the
14 result of a sustained effort over the past few years involving myself, Competitive
15 Coalition witness Dean Fassett, and others. While I am sponsoring these proposed inputs
16 to the BellSouth cost models (and therefore have primary responsibility for answering any
17 questions regarding the appropriateness of these inputs that any party or the Commission
18 may have), Mr. Fassett, as an engineer, is available to answer questions regarding the
19 engineering principles that underlie the proposed input changes.

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1 Q. IN SECTION 1 OF YOUR TESTIMONY, YOU STATED THAT AS A
2 FUNDAMENTAL REQUIREMENT THE DECISIONS REGARDING HOW
3 INDIRECT COSTS WILL BE TREATED IN A COST STUDY SHOULD BE BOTH
4 REASONABLE AND COMPETITIVELY NEUTRAL. DOES BELL SOUTH'S
5 TREATMENT OF SHARED COSTS MEET THIS REQUIREMENT?

6 A. No. One exception to this principle stands out and should be corrected in the BSTLM.
7 Fortunately, this correction can be accomplished through adjustments to the user-
8 adjustable inputs.

9 As explained in Section 1 of my testimony, the application of a "loop is a loop"
10 approach can be an effective means of avoiding cost distortions among rate elements,
11 some of which may have significant competitive implications. By focusing on the facility
12 needed to provide the service, rather than on the service that the facility will ultimately be
13 used to provide, a cost analyst can objectively develop costs. Unfortunately, the BSTLM
14 is designed around a service, rather than facility, orientation. The model considers
15 additional equipment that must be used to provide a given service (as is appropriate), but
16 also allocates shared facilities and equipment subjectively among services (rather than
17 objectively among network components). Some discretion is inherent in the process (i.e.
18 "judgment calls" must be made regarding how the allocation is done). Making this
19 decision at the level of the facilities that will be used to provide multiple services, rather

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1 than at the level of the service, provides less of an opportunity for anticompetitive
2 mischief (or innocent decisions with inadvertent competitive implications).

3 Q. WHAT METHOD HAS BELL SOUTH CHOSEN TO ALLOCATE SHARED LOOP
4 EQUIPMENT?

5 A. BellSouth has chosen to allocate this equipment based on “DS0 equivalents.” As a result,
6 a loop used to provide HDSL services (which provides 1 DS1, or 24 DS0s, worth of
7 bandwidth to the customer) will be allocated 24 times the amount of shared investment
8 assigned to a POTS loop (which requires 1 DS0 worth of bandwidth). In order to
9 determine whether such an allocation methodology is reasonable,¹³ it is necessary to
10 consider whether the higher bandwidth facility (in this case HDSL) *causes* twenty-four
11 times as much shared cost to be incurred.

12 The application of the principle of cost causation should not be an area of
13 disagreement (Ms. Caldwell states and defends this principle at page 6 of her testimony).
14 The BellSouth method of allocating these costs fails the test of cost causation for at least
15 three reasons. First, the capacity of a DLC system operating with concentration ratios
16 (Mr. Milner describes the use of concentration ratios on DLC equipment at pages 5-6 of
17 his testimony) is not constrained by “DS0 equivalents.” The capacity of the common
18 portions of the DLC remote terminal (“RT”) is a function of the number of card slots in a

¹³ Such a methodology clearly has competitive ramifications: the facilities used to provide advanced services such as xDSL will be costed and priced at an unnecessarily high level compared to the facilities used to provide POTS service, making it more difficult for CLECs to compete with BellSouth for these services.

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1 channel bank and the number of channel banks that can fit into the RT cabinet. As a
2 practical matter, however, more than enough slots are available to provide the necessary
3 combination of DS1 and DS0 circuits.¹⁴ A decision to allocate the DLC equipment by
4 “DS0 equivalent” is inconsistent with the principle of cost causation (it is not the total
5 number of “DS0s” provided that cause capacity to be exhausted) and has clear and
6 undesirable competitive implications. Allocation of these costs on the basis of copper
7 pairs, however, would reasonably comport with the principle of cost causation while
8 eliminating the adverse consequences for the competition for advanced services.

9 Second, the largest fixed cost of a DLC system is the cabinet. Cabinet size is not
10 dictated by the number of “DS0 equivalents” being provided, but is a function of the
11 number of channel banks required (the capacity of a channel bank is exhausted by adding
12 more pairs, not by adding more “DS0 equivalents”). Again, the principle of cost
13 causation does not support the allocation of shared costs based on “DS0 equivalents.”

14 Finally, there is no basis for allocating fiber feeder costs based on bandwidth. A
15 fiber facility has virtually unlimited capacity (the capacity is limited by theoretical, rather
16 than practical, constraints). For a facility that cannot, as a practical matter, be exhausted,
17 there is no cost-causative means of allocating the investment. The only objective,
18 therefore, should be competitive neutrality. Allocation of fiber feeder costs on a per-pair
19 basis meets this objective, while allocation on a per-DS0 basis does not.

¹⁴ For example, if an OC-3 system is used that is capable of providing 84 DS1s, 21 DS1s could be used to provide 2016 POTS lines (at a 4:1 ratio), leaving 63 DS1s unused and available to provide other services.

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1 Q. HAVE BELLSOUTH WITNESSES PRESENTED ANY TESTIMONY DURING THE
2 HEARINGS IN LOUISIANA OR ALABAMA, BEYOND THE PREFILED
3 TESTIMONY, THAT DEMONSTRATES THAT THEIR “PER-DS0” APPROACH
4 PROPERLY REFLECTS COST-CAUSATION?

5 A. No. In fact, Ms. Caldwell has completely ignored the type of DLC systems that
6 BellSouth’s engineering directives (and Mr. Milner’s testimony) call for, and instead has
7 focused her explanations on an obsolete system that is not being deployed by BellSouth
8 on a forward-looking basis (and which has not been deployed for at least a decade).
9 Whether or not Ms. Caldwell is ultimately correct about how shared costs should be
10 allocated for this obsolete system is irrelevant in this proceeding, however, because
11 BellSouth must base its cost studies on forward-looking costs. The DLC systems that
12 BellSouth is deploying and will deploy in the foreseeable future exhaust on a per-line
13 rather than per-DS0 basis. The principle of cost causation (endorsed by Ms. Caldwell)
14 demands that shared costs be allocated in a manner that reflects how capacity has
15 exhausted. The changes that I have made to the BSTLM’s inputs accomplish this
16 objective.

17 Q. DOES THE ALLOCATION OF THESE SHARED COSTS ON A PER-PAIR BASIS
18 MEAN THAT ALL SERVICES WILL BE ASSIGNED THE SAME COST?

19 A. No, because not all services require the same number of copper pairs to be used.
20 BellSouth has traditionally distinguished “2 wire” and “4 wire” services, and I am not

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1 recommending a change in that approach. Under my allocation method, a 4 wire service
2 will receive twice the allocation of shared costs as a 2 wire service.

3 Q. IN SECTION 1 OF YOUR TESTIMONY, YOU STATED THAT AS A
4 FUNDAMENTAL REQUIREMENT THE OTHER COST STUDY INPUTS MUST BE
5 CONSISTENT WITH THE REQUIREMENTS SET FORTH IN THE FCC RULES. DO
6 BELLSOUTH'S INPUTS INTO THE BSTLM MEET THIS REQUIREMENT?

7 A. While some of them do, others do not. Two types of inputs require particular attention in
8 order to ensure that costs are not significantly overstated. As Mr. Caldwell describes at
9 pages 28-30 of her testimony, BellSouth applies a series of factors to the acquisition cost
10 of the facilities and equipment used in its network. These factors include what BellSouth
11 refers to as "in-plant" and inflation (or "TPI") factors.

12 Q. PLEASE DESCRIBE THE PROBLEMS INHERENT IN THE APPLICATION OF
13 BELLSOUTH'S "IN-PLANT" FACTORS.

14 A. As described by Ms. Caldwell, "these factors are designed to augment calculated material
15 prices to account for additional costs that are difficult to ascertain on an individual,
16 element-specific basis. Thus, BellSouth develops mathematical relationships between the
17 material prices and the additional labor expense, miscellaneous material, and support
18 structures to capture the total cost BellSouth will incur on a going-forward basis." While
19 I agree generally with Ms. Caldwell's description, two points must be clarified. First, the
20 fact that additional effort may be required to ascertain the amount of these costs caused by

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1 a particular rate element does not mean that it is impossible or even prohibitively difficult
2 to do so. In most cases, BellSouth could determine a relationship between the facility or
3 equipment in question and the categories of cost that are currently “loaded” through the
4 use of factors that more accurately reflect cost causation. Second, the reasonableness of
5 the results of the BellSouth cost studies (and the compliance of these studies with FCC’s
6 rules) depends on whether the “mathematical relationship” calculated by BellSouth is
7 meaningful. The method of comparing material costs to pools of costs to be “loaded”
8 makes sense if, but only if, the amount of indirect or “loaded” costs that are *caused* by the
9 facility or equipment in question bears a direct relationship to the acquisition cost of the
10 facility or equipment. This is not always the case.

11 BellSouth has utilized this process for some time, and until the passage of the
12 FTA and efforts to open the markets for local exchange service to competition the
13 inaccuracies created by this “shortcut” method had few negative implications. The
14 allocation of indirect costs based on the ratio of indirect cost to material cost may have
15 caused some customers to pay more than necessary while others paid less, but since there
16 was no cost-based standard in place for retail rates this problem was not fatal to the
17 BellSouth costing process. In this proceeding, however, the rates that are ultimately
18 being developed are required to be based on cost, and it is therefore necessary to more
19 accurately reflect how these indirect costs are caused.

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1 Q. CAN YOU PROVIDE AN EXAMPLE OF THE TYPE OF COST DISTORTIONS
2 THAT ARE CREATED BY BELL SOUTH'S PROCESS OF USING FACTORS TO
3 ALLOCATE INDIRECT COSTS?

4 A. Yes. Suppose that a 25 pair, 24 gauge cable costs BellSouth \$.25 per foot to acquire, and
5 that a 400 pair, 24 gauge cable costs \$2.50 per foot to acquire.¹⁵ BellSouth would then
6 apply an in-plant factor to those material costs in order to develop an installed cost for
7 each size of cable. If the in-plant factor used by BellSouth for copper cable is 6.5, then
8 the installed cost calculated for the 25 pair cable would be \$1.63, while the installed cost
9 calculated for the 400 pair cable would be \$16.25. Subtracting out the material cost
10 leaves an assumed cost of \$1.38 per foot to install the 25 pair cable and an assumed
11 \$13.75 per foot to install the 400 pair cable. While it is reasonable to expect that, because
12 of its larger diameter, the 400 pair cable would be more costly to install, it is
13 unreasonable to assume that the it would be ten times more costly.

14 This relationship is not an isolated example. Similar distortions occur for all
15 types of plant to which BellSouth applies an "in-plant" factor.

16 Q. IS THE "FACTORING" PROCESS UTILIZED BY BELL SOUTH CONSISTENT
17 WITH THE FCC RULES?

18 A. No. §51.505 (b) requires that the costs calculated for a given UNE be "directly
19 attributable to, or reasonably identifiable as incremental to, such element." The process

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utilized by BellSouth distorts the relative cost of various facilities, thereby distorting the costs calculated for individual elements.

Q. ARE ALTERNATIVES AVAILABLE THAT WOULD ALLOW THE USE OF IN-PLANT FACTORS – AND THE RESULTING COST DISTORTIONS – TO BE AVOIDED?

A. Yes. It is possible to study the amount of each particular type of indirect cost that is caused by direct cost (the direct cost in BellSouth's calculations is represented by the cost of the material). In fact, this is the approach taken by the BSTLM unless BellSouth takes specific action to prevent it from doing so (as it has done in this proceeding). The BSTLM is capable of making more accurate and relevant cost calculations by basing installation costs on direct labor times required to perform specific tasks (placing a foot of cable of a given size or splicing a given number of copper pairs, for example). The Commission should order BellSouth to produce costs based on these more accurate calculations. The Florida Commission has already issued such an order.

Q. PLEASE DESCRIBE THE PROBLEMS INHERENT IN THE APPLICATION OF BELLSOUTH'S INFLATION FACTORS.

A. Inflation is accounted for in the BellSouth cost studies through the application of inflation factors from a database that BellSouth refers to as the TPI (Caldwell, pp. 28). The cost of capital used in the BellSouth cost studies also accounts for the effects of inflation (this is

¹⁵ All values in this answer are illustrative in order to avoid revealing the actual proprietary number. I believe, however, that the illustrative values used reflect the relationship between the actual values with a sufficient degree of

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1 true of the value supported by BellSouth witness Billingsly as well as the value I
2 recommend in Section 6 of my testimony). As a result of how these two types of data are
3 used, inflation is double-counted in BellSouth's cost study.

4 The cost of capital values that both I and Mr. Billingsly have proposed are more
5 accurately denominated as the *nominal* cost of capital. This is in contrast to the *real* cost
6 of capital, which reflects the return on investment demanded by investors if no inflation is
7 expected. In other words, in a world where no inflation is expected, both the nominal and
8 real costs of capital are the same, and equal to the return demanded by investors to
9 compensate them for the risk that they perceive they are taking by making the investment.

10 If inflation is expected, the return demanded by investors (nominal cost of capital) equals
11 the return if there was no inflation (real cost of capital) plus the expected rate of inflation.

12 Because BellSouth multiplies each dollar of capitalized investment by the nominal rate
13 of return in its cost study, the resulting costs explicitly include an annual adjustment for
14 inflation.

15 For example, if the nominal cost of capital is 10% and the real cost of capital is
16 7%, it can be inferred that investors expect an annual 3% rate of inflation. Since
17 BellSouth multiplies each dollar of investment by an annual charge factor that includes
18 the nominal cost of capital, every cost calculated by BellSouth reflects the amount of
19 expected inflation (for every \$1.00 invested, the cost calculated by BellSouth would

accuracy so that, if actual values were used, the same conclusions could be drawn.

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1 include \$.03 of inflation annually). The BellSouth cost studies include a second
2 adjustment for inflation, however, in the form of TPIs. These factors are conceptually the
3 same as the inflation premium in the nominal cost of capital. If the TPI is 1.03, for
4 example, for every \$1.00 invested the cost calculated by BellSouth would include \$.03 of
5 inflation annually. Applying both the cost of capital inflation premium and the TPI,
6 however, yields \$.06 of inflation for every \$1.00 invested – twice the amount demanded
7 by investors and twice the amount predicted by BellSouth.

8 Q. HOW CAN THIS DOUBLE-COUNTING OF INFLATION BE AVOIDED?

9 A. There are two direct methods of doing so: one can use a nominal cost of capital but not
10 TPIs, or use the TPIs in conjunction with the real cost of capital. The adjustments to the
11 model inputs are straightforward for either option. The first option (nominal cost of
12 capital with TPIs set to 1.0) has the practical advantage of using a cost of capital that is
13 conceptually equivalent to what I have developed in Section 6 and what Dr. Billingsly has
14 developed in his testimony.

15 Q. HOW HAVE YOU CORRECTED FOR THE USE OF IN-PLANT FACTORS AND
16 TPIS IN THE BELL SOUTH COST MODELS?

17 A. Out of necessity, I have taken a pragmatic approach to each of these problems. These
18 approaches yield results that are both reasonable and consistent with the FCC's rules.

19 As described previously, the first and best solution to the problems created by
20 BellSouth's use of BellSouth's loading factors is to eliminate the factors altogether and

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1 utilize the capabilities of the BSTLM to calculate these costs directly. Once such costs
2 are produced, the Commission and interested parties will be in a position to evaluate the
3 appropriateness of the process utilized by the BSTLM and the reasonableness of the
4 results produced by that process. Since BellSouth elected to withhold this important
5 information in this proceeding, it is now necessary to proceed by utilizing the next best
6 information available.

7 In Universal Service proceedings held throughout the region (including Docket
8 No. 97-239-C here in South Carolina), BellSouth presented material costs as inputs to the
9 BCPM model that it sponsored in those proceedings. The majority of these inputs
10 compare directly with the material inputs to the BSTLM. The Florida Public Service
11 Commission recently undertook an effort to examine BellSouth's inputs in detail and to
12 adopt values for those inputs that reflect the installed cost of each type of facility and
13 equipment, thereby eliminating the need to apply BellSouth's loading factors. At page
14 157 of its Order in Docket No. 980696-TP, the Florida PSC presented the following
15 conclusion:

16 We find that BellSouth's use of linear loading factors, while easy
17 for BellSouth to apply, can generate results that seem to beg
18 questions. For example, for 26 gauge buried copper cable, actual
19 material costs as a percent of total cost stays constant at about 23
20 percent no matter whether the cable is 12 pair or 4200 pair. This

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1 means that the total cost of this cable is always about 4.3 times the
2 actual material cost; thus, no economies of scale for exempt
3 material, engineering, or BellSouth labor, ever occur. It seems
4 very unlikely that there are no economies generated as cable sizes
5 grow larger.

6 In order to correct this problem, the Florida PSC adopted for BellSouth a set of
7 material inputs that include the costs represented by BellSouth's loading factors, thereby
8 eliminating the need to apply those factors.

9 Q. THE INSTALLED MATERIAL PRICES DEVELOPED BY THE FLORIDA
10 COMMISSION WERE ADOPTED IN A UNIVERSAL SERVICE PROCEEDING. IS
11 THERE ANY REASON THAT THESE INPUTS WOULD NOT BE APPLICABLE TO
12 AN INVESTIGATION OF UNE COSTS?

13 A. None at all. The network being studied in USF and UNE proceedings is the same, and
14 there is no reason to assume different costs for installing network facilities and
15 equipment. The cost standards to be applied are also the same: the costs calculated in a
16 USF proceeding are Total Service Long Run Incremental Costs ("TSLRIC"), while the
17 costs calculated in a UNE pricing proceeding are Total Element Long Run Incremental
18 Costs ("TELRIC"). When coining and describing the term TELRIC, the FCC was clear
19 that TELRIC was simply the TSLRIC methodology applied to network elements rather
20 than services. The act of studying a network element rather than a service in no way

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1 justifies an assumption that a given piece of wire will cost something different to acquire
2 or install, however. As a result, material prices that include installation costs (as
3 developed by the Florida Commission) are equally applicable to a USF or UNE
4 proceeding.

5 Q. ARE BELL SOUTH'S MATERIAL COSTS LIKELY TO VARY FROM STATE TO
6 STATE?

7 A. No. BellSouth purchases regionally, not on a state-by-state basis (the material cost inputs
8 used by BellSouth in the Florida and South Carolina versions of the BSTLM are virtually
9 identical). While the labor cost per unit for the material installation may change slightly
10 from state to state, I have concluded that this difference does not warrant a change to the
11 inputs adopted by the Florida PSC. According to the National Construction Estimator,
12 the labor costs in South Carolina are 19-20% lower than those in Florida. As a result, use
13 of the Florida values in South Carolina will overstate BellSouth's installed material costs,
14 leading to a slight overstatement of the final UNE costs.

15 Q. WHAT INPUTS DO YOU RECOMMEND THE COMMISSION USE IN ORDER TO
16 AVOID THESE PROBLEMS (TO THE EXTENT POSSIBLE) WHEN CALCULATING
17 NETWORK INVESTMENTS?

18 A. Until BellSouth utilizes the capability of the BSTLM and provides the actual cost data
19 that to date has been withheld, I recommend that the Commission adopt the more
20 accurately "loaded" material investments adopted by the Florida Commission, thereby

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1 permitting BellSouth's in-plant factors to be reset to 1.0. In addition, I recommend the
2 use of a nominal cost of capital, which will require that BellSouth's TPIs be reset to 1.0.

3 There are two exceptions to this recommendation. First, some facility sizes are
4 slightly different in the BCPM versus the BSTLM, and I have calculated the interim data
5 points. For example, BCPM has material costs for 1200 and 1800 pair cables, but not for
6 the 1500 pair cable that is an option in the BSTLM. I then had to calculate an interim
7 value for the 1500 pair cable based on the values for the 1200 and 1800 pair cables.
8 Second, the material costs for certain DLC equipment used by BellSouth do not match
9 well with the BCPM inputs, and I have therefore been forced to develop "loaded" costs
10 using loading factors (identical to what BellSouth has done). Before adopting final rates
11 in this proceeding, the Commission should require BellSouth to make the necessary
12 information available in order to develop installed material costs for DLC equipment that
13 do not depend on the application of factors.

14 As a result of these efforts, it is possible to minimize, but not eliminate, the
15 distortions in the results caused by BellSouth's flawed process.

16 Q. DID YOU MAKE CHANGES TO ANY OF THE INPUTS TO THE BSCC?

17 A. Yes. I changed the cost of capital and depreciation assumptions. In addition, I updated
18 the expense factors to used by BellSouth in order to reflect the level of expenses
19 associated with efficient operation. Instead of the efficient levels of expense required by

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1 the FCC rules, BellSouth improperly utilized historical expenses as reflected in its books
2 of account.

3 Q. HOW DID BELL SOUTH USE ITS HISTORICAL EXPENSES TO FORECAST
4 FORWARD-LOOKING EXPENSES?

5 A. BellSouth took its booked total company regulatory 1998 expenses, adjusted them for out
6 of period occurrences, increased them to reflect expected inflation, increased them to
7 reflect anticipated additional expense caused by increased demand, and then decreased
8 them in order to reflect is projected productivity gains. The end result of this process is
9 BellSouth's forecasted year 2000 through year 2002 test period expense levels.

10 BellSouth then took the projected year 2000 through 2002 expense levels, averaged them,
11 and compared them to adjusted 1998 data to determine expense development factors.

12 Q. HOW SHOULD BELL SOUTH HAVE USED HISTORICAL EXPENSE DATA TO
13 FORECAST EXPENSE LEVELS CONSISTENT WITH TELRIC PRINCIPLES?

14 A. As an initial matter, BellSouth's booked total company regulatory 1998 expense, adjusted
15 for out of period occurrences, is not the correct starting point. If historic (embedded)
16 levels of expense are to be considered at all when forecasting the expense level for a
17 forward-looking efficient firm (as required by the FCC rules), at a minimum a best
18 practices analysis should be done in order to ascertain the appropriate starting point.

19 Q. CAN BELL SOUTH'S 1998 DATA BE ADJUSTED TO ELIMINATE THE
20 EMBEDDED INEFFICIENCIES?

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A. To a degree, yes. I have compared the BellSouth 1998 embedded cost data that has been used in BellSouth's cost studies to comparable data for other ILECs. Such an analysis indicates that BellSouth is not the least-cost, most-efficient ILEC on an embedded basis; and its historic operation is extremely unlikely to represent the operation of the forward-looking efficient firm defined in the FCC's TELRIC cost rules.

Q. PLEASE DESCRIBE THE ANALYSIS THAT LEADS TO THIS CONCLUSION.

A. Exhibit DJW- 5 contains information downloaded from the FCC website, including common support expense data from ARMIS 43-03, billable access lines from ARMIS 43-01, and total switched and special lines from ARMIS 43-8. This data is presented for all ILECs for the years 1997, 1998 and 1999. The first step in the analysis is to determine each ILEC's common support cost per, line per month. The second step is to sort this data from least-cost to highest-cost ILEC, using common support cost per line per month. The next step is to total the 1998 data for BellSouth's nine states to determine the BellSouth common support cost per line of the data used in this proceeding, and compared that amount to the average of the ninety percent (90%) percentile ILEC's common support cost per line for the three years. I used the 90th percentile ILEC as a proxy for a forward-looking efficient ILEC.

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Q. WHAT WERE THE RESULTS OF THIS ANALYSIS?

A. BellSouth's common support cost per line for 1998 was \$12.6366¹⁶, while the average embedded cost of the 90th percentile ILEC over the three-year period (1997, 1998 and 1999) was \$9.8415.¹⁷ As a result of this difference, it is reasonable to conclude that the data used by BellSouth in this proceeding overstates a forward-looking efficient ILEC's common support expense by at least 22.12%. ($1 - (9.8415 / 12.6366) = 22.12\%$). The Commission should, at a minimum, reduce BellSouth's 1998 common support expense data by 22.12% to approximate the cost of a forward-looking efficient ILEC as required by the FCC TELRIC rules. I have run the BSCC utilizing a 22.12% adjustment to BellSouth's 1998 common support expense data.

Q. WHAT PRODUCTIVITY FACTOR DID BELL SOUTH USE TO FORECAST ITS FUTURE LEVEL OF EXPENSES?

A. BellSouth used a 3.1% total productivity factor, taken from a United States Telephone Association ("USTA") study that was filed with the FCC. This USTA study was not adopted by the FCC. Comments filed by CLECs in that same proceeding asserted that the reasonable range of ILEC productivity is between 9.1 and 9.5%. To date, however, a new FCC productivity factor has not been established. The FCC's current approved total

¹⁶ Exhibit DJW- 5, 1998ILECCommonSupport.xls, p. 3.

¹⁷ In 1999 Rochester Telephone was the 90th percentile ILEC with \$8.4194 common support expense per line per month. In 1998 Bell Atlantic – Washington, D.C. was the 90th percentile ILEC with \$10.4545 common support expense per line per month, and in 1997, U.S. West North Dakota was the 90th percentile ILEC with \$10.6507 Common Support expense per line per month. $(8.4194 + 10.4545 + 10.65) / 3 = \9.8415

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1 productivity factor for BellSouth is 6.5%. Because the FCC's currently effective 6.5%
2 productivity factor has been subjected to in-depth analysis by the FCC (while BellSouth's
3 proposed 3.1% has not), it continues to represent the best information available. The
4 Commission should require BellSouth to use a productivity factor in its expense forecasts
5 that is no less than the FCC's last-approved 6.5% productivity factor.

6 Q. ARE THERE OTHER REASONS WHY YOU BELIEVE THAT IS IT REASONABLE
7 TO APPLY A 6.5% PRODUCTIVITY FACTOR TO ADJUSTED BELL SOUTH
8 DATA?

9 A. Yes. Trend analysis (attached as Exhibit DJW- 6) shows that ILECs are becoming more
10 efficient at managing their expenses. The application of an accurate and reasonable
11 productivity factor requires that the cost analyst consider this information that suggests
12 that an ILEC will operate more efficiently tomorrow that it has in the past.

13 Q. YOU STATED THAT BELL SOUTH HAS ALSO APPLIED INFLATION FACTORS
14 WHEN DEVELOPING ITS PROPOSED LEVELS OF EXPENSES. SHOULD
15 INFLATION FACTORS BE USED TO PROJECT THE LEAST-COST, MOST-
16 EFFICIENT FIRM'S EXPENSES?

17 A. It is reasonable to use an inflation factor for expenses where inflation exists. This is
18 because the nominal cost of capital, described in Section 3 of my testimony, is applied
19 only to investment and is not applied to expense. Of course, an inflation factor should not
20 be applied to expense items where inflation does not exist.

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1 Q. IS THE APPLICATION OF AN INFLATION FACTOR TO THE PERSONAL
2 COMPUTER EXPENSE ACCOUNT (6124) APPROPRIATE?

3 A. No. Such an adjustment is in error because the cost of maintaining personal computers is
4 not clearly not increasing (This assumption is supported by the 10 year trend analysis of
5 BellSouth ARMIS data contained on Exhibit DJW- 6 for account 6124). No inflation
6 adjustment should be applied to this account.

7 Q. WHAT IMPACT WOULD THESE ADJUSTMENTS (I.E. ELIMINATION OF
8 EMBEDDED INEFFICIENCIES, 6.5% PRODUCTIVITY FACTOR AND ZERO
9 INFLATION ON ACCOUNT 6124) HAVE ON BELL SOUTH'S EXPENSE
10 FORECASTS?

11 A. These adjustments will change the projected expense for the 2000-2002 test period
12 contained in Appendix F, Excel Spreadsheet EXPDVF00.xls. I used this revised level of
13 expense to develop updated factors to be utilized in the BSCC. Exhibit DJW- 7 contains
14 the revised expense development factors and the revised Shared and Common Cost
15 factors that would be created by these adjustments.

16 Q. WHAT ARE THE RESULTS OF YOUR ANALYSIS OF THE COST OF
17 BELL SOUTH'S LOOP-RELATED UNES?

18 A. The results of my run of the BSTLM and BSCC yields the cost results presented in
19 Exhibit DJW-2. These costs are the basis for the rates set forth in that exhibit.

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Section 4: Description of Requirements for the Provisioning of the UNE Platform (“UNE-P”)

Element

Q. WHAT IS THE UNE-P?

A. The UNE-P is a combination of UNEs that typically occurs to provide POTs (“plain old telephone”) service. The UNE-P is the combination of a voice grade loop, local switching (including all features) and any necessary interoffice transport. It appears as element P.1 in BellSouth’s rate proposal and in the rate proposal that I have presented in Exhibit DJW-2.

Q. WHAT IS THE SIGNIFICANCE OF THE UNE-P TO THE DEVELOPMENT OF COMPETITION IN SOUTH CAROLINA?

A. CLECs have found that UNE-P is a far more efficient vehicle for widespread local entry than the strategy of purchasing only unbundled loops. If prices for UNE-P are (1) calculated – as required -- at TELRIC by correctly applying the FCC’s pricing rules and (2) these prices afford a profit margin to a CLEC (who must also recover its own costs), UNE-P is the best option available to CLECs to offer voice services to residential and small business customers on a scale that will provide meaningful competition to the ILECs. As described in detail below, UNE-P must be made universally available because BellSouth *currently combines* the loop and port elements in its network (otherwise BellSouth’s local network would not function).

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1 Q. WHAT IS YOUR UNDERSTANDING REGARDING BELL SOUTH'S CURRENT
2 OBLIGATIONS TO UNBUNDLE ITS NETWORK?

3 A. As emphasized by the Supreme Court in *AT&T Corp. v. Iowa Utilities Board*, the ILECs,
4 including BellSouth, are subject under the FTA to duties intended to facilitate market
5 entry. Foremost among these duties is the ILEC's obligation under 47 U.S.C. § 251(c) to
6 share its network with competitors. Section 251(c)(3) establishes:

7 The duty to provide, to any requesting telecommunications carrier
8 for the provision of a telecommunications service,
9 nondiscriminatory access to network elements on an unbundled
10 basis at any technically feasible point on rates, terms, and
11 conditions that are just, reasonable, and nondiscriminatory in
12 accordance with the terms and conditions of the agreement and the
13 requirements of this section and section 252 . . . An incumbent
14 local exchange carrier shall provide such unbundled network
15 elements in a manner that allows requesting carriers to combine
16 such elements in order to provide such telecommunications
17 service.

18 Q. HAS THE FCC PROMULGATED RULES TO FURTHER DEFINE AN ILEC'S
19 DUTIES IN THIS RESPECT?

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1 A. Yes. The FCC explicitly declined in its First Report and Order to impose a requirement
2 of facility ownership on carriers who sought to lease network elements (§§328—340).
3 The effect of this omission was to allow competitors to provide local phone service
4 relying solely on the elements in an incumbent’s network.
5 The FCC then promulgated the pricing rules referred to above, to govern the
6 Commission’s decision in this proceeding. Other rules included 47 C.F.R. §51.315 (b)
7 (Combination of unbundled network elements). The rule is often referred to as the “all
8 elements” rule. Section 51.315 (b) states: “Except upon request, an incumbent LEC shall
9 not separate requested network elements that the incumbent LEC *currently combines*”
10 (emphasis added). The FCC also enacted Rules 315 (c) - (f). Rule 315 (c) states that
11 “Upon request, an incumbent LEC shall perform the functions necessary to combine
12 unbundled network elements in any manner, even if those elements are not ordinarily
13 combined in the incumbent LEC’s network” (emphasis added). In short, an ILEC is
14 required to provide to CLECs combinations of UNEs, such as the UNE-P, that are
15 ordinarily combined in the ILEC’s network.

16 Q. HAS BELLSOUTH CHALLENGED THESE RULES?

17 A. Yes. In the aftermath of the Local Competition Order the ILECs, including BellSouth,
18 argued that this “all elements” rule undermined the goal of encouraging entrants to
19 develop their own facilities. The Eighth Circuit, to which the appeal of the Local
20 Competition Order was brought, generally deferred to the FCC’s approach. The Eighth

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1 Circuit was of the view that the language of §251(c)(3) indicates that “a requesting carrier
2 may achieve the capability to provide telecommunications service completely through
3 access to the unbundled elements of an incumbent LEC’s network.”¹⁸

4 The Eighth Circuit, however, thought that the FCC went too far in enacting 47
5 C.F.R. section 315(b). As characterized by the Supreme Court in section I of its
6 decision:

7 The Court of Appeals believed that [allowing requesting carriers to
8 lease the incumbent’s entire, preassembled network] would render
9 the resale provision of the statute a dead letter, because by leasing
10 the entire network rather than purchasing and reselling service
11 offerings, entrants could obtain the same product–finished service–
12 at a cost-based, rather than wholesale, rate. 120 F.3d, at 813.

13 Apparently reasoning that the word “unbundled” in §251(c)(3)
14 meant “physically separated,” the [Eighth Circuit] vacated Rule
15 315(b) for requiring access to the incumbent LEC’s network
16 elements “on a bundled rather than an unbundled basis.”
17

18 For these stated reasons, the Eighth Circuit vacated Rule 315 (b).

¹⁸ *Iowa Utilities Board, et al., v. FCC, et al.*, 120 F.3d. 753, 814 (1997).

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Q. YOU STATED THAT THE EIGHTH CIRCUIT COURT'S DECISION WAS
APPEALED TO THE UNITED STATES SUPREME COURT. WHAT DID THE
SUPREME COURT ULTIMATELY DECIDE?

A. The Supreme Court reversed the Eighth Circuit. In section III.D of its decision the
Supreme Court concluded that:

It was entirely reasonable for the [FCC] to find that the text does
not command this conclusion. It forbids incumbents to sabotage
network elements that are provided in discrete pieces, and thus
assuredly contemplates that elements may be requested and
provided in this form (which the [FCC's] rules do not prohibit).
But it does not say, or even remotely imply, that elements must be
provided only in this fashion [i.e., disconnected] and never in
combined form. . . As the [FCC] explains, it is aimed at preventing
incumbent LECs from "disconnect[ing] previously connected
elements, over the objection of the requesting carrier, not for any
productive reason, but just to impose wasteful reconnection costs
on new entrants." ...It is true that Rule 315(b) could allow entrants
access to an entire preassembled network. In the absence of Rule
315(b), however, incumbents could impose wasteful costs on even
those carriers who requested less than the whole network. It is well

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1 within the bounds of the reasonable for the Commission to opt in
2 favor of ensuring against an anticompetitive practice.

3 By reinstating Rule 315 (b), the Supreme Court agreed that the FCC reasonably
4 concluded that the Act does not require a CLEC to own any facilities in conjunction with
5 UNEs leased from an ILEC. Instead, according to the Supreme Court CLECs are entitled
6 to lease the “entire preassembled network” necessary to offer local exchange services.

7 Q. THE EIGHTH CIRCUIT COURT REMANDED CERTAIN ISSUES TO THE FCC.
8 WHAT OCCURRED AT THAT TIME?

9 A. The FCC in the UNE Remand Order declined to revisit the “currently combines”
10 requirement of Rule 51.315 (b). The FCC did restate, based on its pronouncement in its
11 Local Competition Order, that an ILEC must provision network element combinations
12 where such elements are “ordinarily combined within [the] network, in the manner which
13 they are typically combined.” UNE Remand Order, at ¶ 479 (Emphasis added). The FCC
14 also quoted the Local Competition Order’s statement that the “proper reading of
15 ‘currently combines’ in rule 51.315 (b) means *ordinarily combined* within [the
16 incumbent’s] network, in the manner which they are *typically combined*.” Id. (emphasis
17 added).

18 Q. WHAT IS YOUR UNDERSTANDING OF THE CURRENT STATUS OF RULE 315
19 (b)?

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1 A. It remains in full effect, and is likely to continue in effect. The Eighth Circuit Court did
2 not invalidate Rule 315 (b) in its most recent decision.

3 Q. WHAT IS THE PRACTICAL EFFECT OF THE EXISTING FCC RULES ON THIS
4 ISSUE?

5 A. CLECs can purchase UNEs in combination, such as a loop and a port, even when the
6 network elements supporting the underlying service are not physically connected at the
7 time the service is ordered. This is the case because those UNEs are typically combined;
8 i.e., the ILEC "currently combines" them. CLECs can therefore obtain UNE
9 combinations at UNE prices.

10 Rule 315 (b) requires a LEC to provide UNE combinations, even if they are not
11 already combined for a given customer or location, provided the LEC "currently
12 combines" them for its customers. Rule 315(b), by its own terms, applies to elements
13 that the incumbent "currently combines," not merely elements that are "currently
14 combined" for a given customer or location. In the Local Competition Order at ¶ 296, the
15 FCC stated that the proper reading of "currently combines" is "ordinarily combined
16 within their network, in the manner which they are typically combined." Accordingly, the
17 only FCC interpretation of "currently combines" remains the literal one, contained in the
18 Local Competition Order.

19 Q. WHAT CONCLUSIONS DO YOU DRAW FROM THE FCC RULES AND THE
20 DECISIONS YOU HAVE REVIEWED?

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1 A. A ruling requiring ILECs to combine currently unconnected network elements that are
2 ordinarily combined is consistent with the intent of the Act to hasten competitive entry
3 through a number of service delivery methods, including use of leased network elements.
4 It is also consistent with the Supreme Court’s ruling in Iowa Utilities Board, which
5 rejected the view that Section 251(c)(3) of the Act only allows the leasing of “discrete
6 pieces” of network elements.

7 Nothing in the Act precludes a requirement that BellSouth or any other ILEC lease
8 network elements in combined form. A Commission ruling directing BellSouth to
9 combine elements upon request whenever those elements are ordinarily combined by the
10 incumbent is reasonable, pro-competitive, and required by section 315 (b) (thereby
11 fulfilling a fundamental purpose of the Act). A contrary ruling would arbitrarily limit the
12 benefits of competition to those end users to which an ILEC has *currently combined*
13 network elements. Those customers in locations not previously served by BellSouth
14 (new construction), customers moving into BellSouth’s service territory, customers
15 currently being served by a carrier other than the incumbent, or customers who wish to
16 purchase a different service from a CLEC than they are currently receiving from
17 BellSouth would be arbitrarily and improperly denied competitive alternatives.

18 In addition to this undesirable outcome, such a restriction appears to be directly at
19 odds with the currently legal requirements. The Act imposes no limitation on a
20 competitor’s ability to provide a completed service by relying solely on the incumbent’s

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1 network elements rather than any owned facilities, and 315 (b) clearly requires it. ILECs
2 must provide UNE combinations, even when for a given customer or location they are not
3 “currently combined.”

4 It then follows that those network elements, if currently combined, cannot be
5 separated except at the request of competitors, and must be provided to competitors at
6 cost-based rates.

7 Q. WHAT ELEMENTS DOES BELL SOUTH ORDINARILY COMBINE IN ITS
8 NETWORK?

9 A. There is no question that BellSouth currently combines all elements included in UNE-P
10 to provide its own local service. It ordinarily uses these combinations to provide service
11 to its end users. There also is no question that BellSouth currently combines loop and
12 transport (sometimes referred to as an extended loop, or “EEL”) to provide certain
13 services (including special access services). In the UNE Remand Order the FCC
14 reiterated the ILECs’ obligation to make the EEL available to CLECs for local exchange
15 service.¹⁹ In this Supplemental Order, the FCC modified its conclusion in ¶ 486 of the
16 UNE Remand Order to allow incumbent LECs to constrain the use of combinations of
17 unbundled loops and transport network elements by IXC as a substitute for special
18 access service (Supplemental Order, ¶ 4). IXCs may not convert special access services
19 to combinations of unbundled loops and transport network elements, whether or not the

¹⁹ In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Supplemental Order, (release November 24, 1999)

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IXCs self-provide entrance facilities, unless the IXC uses the combination "to provide a significant amount of local exchange service, in addition to exchange access service, to a particular customer." Id. at ¶ 5. Thus the EEL is considered to be a combination of UNEs and is not "special access".

Q. HOW HAVE OTHER COMMISSIONS RULED WITH REGARD TO THE
"CURRENTLY COMBINES" ISSUE?

A. In an Order dated February 1, 2000, in Docket No. 10692-U, the Georgia Public Service Commission ruled that CLECs can order UNE combinations, even if the particular elements being ordered are not actually physically connected at the time the order is placed.

Specifically, the Georgia commission stated that:
BellSouth has interpreted the term "currently combines" as
"currently combined." BellSouth defines the term to mean those
elements "that are physically in a combined state as of the time the
CLEC requests them and which can be converted to UNEs on a
'switch as is' or 'switch with changes' basis. . . . Currently
combined elements only include loops, ports, transport or other
elements that are currently installed for the existing customer that
the CLEC wishes to serve." BellSouth's Post hearing Brief, p. 9.

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1 The Georgia commission went on to conclude that:
2 at the very least, Rule 315(b) requires BellSouth to provide
3 combinations of elements that are already physically connected to
4 each other regardless of whether they are currently being used to
5 serve a particular customer. The Supreme Court, however, did not
6 state that it was reinstating Rule 315(b) only to the extent it
7 prohibited incumbents from ripping apart elements currently
8 physically connected to each other. It reinstated Rule 315(b) in its
9 entirety, and it did so based on its interpretation of the
10 nondiscrimination language of Section 251(c)(3).

11 At page 5 of its Order, the Georgia commission properly found that "currently
12 combines" means "ordinarily combined" within the BellSouth network. As a result, in
13 Georgia CLECs can order combinations of ordinarily combined elements, even if the
14 particular elements being ordered are not actually physically connected at the time the
15 order is placed. It is my understanding the Georgia commission has issued decisions in
16 subsequent Section 252 arbitrations consistent with its policy as articulated in Docket No.
17 10692-U.

18 Q. WHAT WOULD BE THE EFFECT IF THE COMMISSION WERE TO LIMIT THE
19 AVAILABILITY OF UNE-P TO INSTANCES CUSTOMERS, AND LOCATIONS IN
20 WHICH FACILITIES ARE ALREADY PHYSICALLY COMBINED?

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1 A. If this Commission were to limit the definition of "currently combines" to the more
2 restrictive "currently combined" interpretation, the process of obtaining elements would
3 be more cumbersome and would serve no purpose except to complicate the ordering
4 process and impede competition. As the Georgia commission correctly pointed out:

5 [E]ven assuming arguendo that 'currently combines' means
6 'currently combined,' rather than go through the circuitous process
7 of requiring the CLEC to submit two orders (e.g., one for special
8 access followed by another to convert the special access to UNEs)
9 to receive the UNE combination, the process should be streamlined
10 to allows CLECs to place only one order for the UNE combination.

11 BellSouth's argument creates an absurd, unsupportable, and apparently legally
12 indefensible dichotomy between existing customers and new customers. The absurdity of
13 this argument can be understood with a simple example: According to BellSouth, a
14 CLEC could offer residential service to Mr. Jones by using a loop/port combination *if* Mr.
15 Jones is an existing BellSouth customer for this service. The network facilities used to
16 provide residential service to Mr. Jones' house are *currently combined*. If Mr. Jones,
17 however, were to sell his house to his friend Mr. Smith, under BellSouth's proposal the
18 CLEC might not be able to offer service using the loop/port combination to Mr. Smith
19 because he is not an existing BellSouth customer; i.e. the network elements are not
20 *currently combined* for the purpose of offering service to Mr. Smith. The same local

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1 loop, the same switch port – and the same connection between them – would remain in
2 place, but BellSouth would no longer consider these facilities to be connected for the
3 purpose of defining a UNE combination that could be purchased.

4 The equal absurdity of the proposed existing/new location dichotomy is also
5 readily apparent from an additional example. As long as Mr. Jones stays in his existing
6 house (where he is a BellSouth customer), a CLEC may offer residential service to him
7 by using a loop/port combination. If, however, he were to build a house down the street
8 that will also be served by BellSouth's network, the CLEC would be unable to provide
9 service to him using a loop/port combination, even though the connection from the new
10 house to the BellSouth network (including the loop to port combination) would have been
11 established. Presumably, however, if Mr. Jones first signs up for BellSouth's residential
12 service, he would then be eligible to be served by a CLEC using a loop/port combination
13 because he would no longer represent a new location.

14 Q. WOULD THERE BE A COMPETITIVE ADVANTAGE TO AN ILEC IN THIS
15 RESPECT?

16 A. Absolutely. BellSouth would be able to prevent widespread market entry for residential
17 and small business customers.

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Section 5: Review of BellSouth's Proposed Rates for the Vertical Features of a Switch

Q. WHAT SWITCHING-RELATED RATES ARE YOU ADDRESSING IN YOUR TESTIMONY?

A. I am specifically addressing the rates for vertical switching features in BellSouth's proposal (rate element B.4.13). BellSouth has proposed a bundled rate of \$2.19 for a collection of vertical features.

The proposed rate should be rejected for two reasons. First, BellSouth has not demonstrated (and likely cannot demonstrate) that providing these vertical features to CLECs causes BellSouth to incur an incremental cost above and beyond the costs that have already been included in the rates for switching ports and usage. In the absence of the demonstration of such an incremental cost, the rate should be \$0 (this is the case in several other BellSouth states). Second, even if BellSouth were to demonstrate that it incurs an incremental cost to provide these features, its rate proposal improperly bundles individual features together, thereby preventing CLECs from purchasing only those features that they need or want. Such bundling violates both the requirements set forth in the FTA and FCC rules for *unbundled* network elements.

Q. HOW SHOULD THE COST OF THESE VERTICAL FEATURES BE CALCULATED?

A. The costs of vertical features potentially consist of both hardware and software components. The hardware involved is the switch processor. Vertical features cause an incremental cost to be incurred if they contribute to the exhaust of the processor's

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1 capacity. The software includes right to use fees for these features, if they have not
2 already been included in the price for the switch's generic software (BellSouth now
3 capitalizes the cost of the switch generic, and to include it again when calculating features
4 costs would be a double-counting of the cost).

5 Q. HOW HAS BELL SOUTH CALCULATED THE COST OF THESE VERTICAL
6 FEATURES?

7 A. According to Ms. Caldwell (p. 37), BellSouth has calculated an incremental investment
8 for features based on the busy hour of the switch processor: "in order to develop flat-rated
9 feature costs, the usage in the busy hour is the only relevant factor. Inputs need to reflect
10 the anticipated demand that is going to be placed on the switch due to the request for
11 feature-enhanced call processing."

12 While there is no debate that many of the vertical features provided to CLECs by
13 BellSouth are provided via the switch processor, the salient question is whether providing
14 these features *causes* BellSouth to incur additional processor costs. Processor usage to
15 provide a given element is a cost-causative event if, but only if, it requires BellSouth to
16 purchase additional units of capacity (e.g. if BellSouth has to buy a larger processor than
17 it would otherwise have to buy if it did not provide vertical features, or has to upgrade or
18 replace a switch prior to the end of its expected useful life). Two facts indicate that this is
19 not the case. First, BellSouth sizes its switch processor based on busy hour minutes of
20 use (not vertical features usage). Second, it is extremely rare for a switch to be

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1 “processor constrained,” meaning that the capacity of the processor is exhausted during
2 the assumed life of the switch.²⁰ Instead, switches are almost always “line constrained,”
3 meaning that the capacity of the line ports (affecting the number of lines that the switch
4 can serve) is reached first.

5 Q. IS BELLSOUTH LIKELY TO BE ABLE TO CALCULATE AN INCREMENTAL
6 COST ASSOCIATED WITH THE USE OF SOFTWARE TO PROVIDE FEATURES?

7 A. No. The vertical features at issue are the ones that switch manufacturers call “pre-
8 constructed” features. A pre-constructed feature is one that is included in the generic
9 software of the switch. There is no justification, then, for the inclusion of any additional
10 software costs. BellSouth has now begun capitalizing the cost of the generic software as
11 a part of the investment in the switch, so the cost of this software is now reflected in the
12 investments used to develop costs for the port and usage elements. Additional charge for
13 features would permit BellSouth to double-recover these costs.

14 Q. HAVE OTHER STATE REGULATORS ADOPTED RATES CONSISTENT WITH
15 YOUR POSITION?

16 A. Yes. The Florida, Georgia, Kentucky, and Tennessee Commissions have adopted zero
17 rates for switch features.

²⁰ Information provided by BellSouth to the Georgia Public Service Commission in Docket No. 7061-U indicates the processors of BellSouth’s switches are typically running at between 44% and 54% of capacity at the time the switch is replaced.

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1 Q. WHAT IS YOUR RECOMMENDATION TO THE COMMISSION REGARDING
2 BELLSOUTH'S PROPOSED RATE FOR SWITCHING FEATURES?

3 A. BellSouth has not demonstrated that it incurs any incremental costs to provide switch
4 features that are not already being recovered through the rates for other switching
5 elements. In addition, BellSouth has now attempted to support the bundling of features
6 into a package, effectively making features a "take all or leave it" proposition for CLECs.

7 It is my recommendation that the Commission conclude, as other states in the
8 region have concluded, that no additional charge for features is needed or appropriate. If
9 the Commission does decide to permit BellSouth to assess charges for switch features, it
10 should continue to require BellSouth to unbundle those features and allow them to be
11 purchased separately.

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Section 5: Rates That Should Be Adopted For Cageless Collocation

Q. WHAT ELEMENTS OF COLLOCATION ARE YOU ADDRESSING IN YOUR TESTIMONY?

A. I am addressing the rates that are applicable to cageless collocation. This form of collocation was created by the FCC in its *First Report and Order and Further Notice of Proposed Rulemaking* in CC Docket 98-147, released March 31, 1999 (“Advanced Services Order”).

Q. WHAT IS CAGELESS COLLOCATION?

A. A cageless collocation arrangement permits a CLEC to place certain equipment in the BellSouth central office that is used or useful for the purpose of interconnecting with the BellSouth network. The CLEC owns the equipment and retains all responsibility for its care and maintenance. In contrast to “caged” or “walled” collocation, however, this equipment is not (and pursuant to the FCC cannot be) physically separated from BellSouth’s network equipment by the erection of physical barriers or the deployment of separate supporting facilities (such as HVAC).

The FCC describes cageless collocation in the Advanced Services Order as an alternative collocation arrangement to physical collocation because it does not require the use of a cage. This is not, however the only distinction the FCC makes. As noted in the Advanced Services Order at ¶42, “caged collocation space results in the inefficient use of the limited space in a LEC premises, and we consider the efficient use of collocation

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space to be crucial to the continued development of the competitive telecommunication market." The FCC proceeded to state that the "incumbent LECs must allow competitors to collocate in any unused space in the incumbent LEC's premises, without requiring the construction of a room, cage, or similar structure, and without the creation of a separate entrance to the competitor's space." The FCC further noted that "incumbent LEC's must permit competitors to have direct access to their equipment." They also required at ¶43 that incumbent LECs "make collocation space available in single-bay increments" to ensure that competitors only have to purchase space sufficient for their needs.

Q. WHAT FORM OF COLLOCATION DOES A CAGELESS ARRANGEMENT MOST CLOSELY RESEMBLE?

A. The FCC's description of cageless collocation mirrors the characteristics of a virtual collocation arrangement. The exception is that under a virtual collocation arrangement, the CLEC does not have physical access to the incumbent LEC's premises and the CLEC equipment is under the physical control of the incumbent LEC (including installation, maintenance and repair responsibilities). From a costing perspective, however, the characteristics of a virtual collocation arrangement are more applicable to a cageless arrangement than are those of a physical collocation arrangement. Like virtual collocation, cageless collocation involves a collocater's equipment placed within the ILEC equipment lineups without using a segregated area of the central office. In cageless collocation, however, the collocater retains ownership and control of the collocated

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equipment. As a result, training charges are unnecessary and maintenance costs associated with the collocated equipment are not incurred by the ILEC. The only major difference between the costs associated with a virtual arrangement and a cageless arrangement are those associated with installation, maintenance and repair of the collocating CLEC's equipment.

Q. HAS BELLSOUTH PROPOSED COSTS AND RATES THAT ARE APPROPRIATE FOR CAGELESS COLLOCATION IN THIS PROCEEDING?

A. No. Exhibit JAR-1 contains rates for physical and virtual collocation, but does not distinguish between cageless collocation and a much more costly caged arrangement. In past proceedings, BellSouth has argued that since both caged and cageless collocation are forms of physical collocation ("physical" collocation simply means that the CLEC owns and controls the collocated equipment; in a "virtual" collocation arrangement the ILEC controls the equipment), the same costs should apply to each. Such an argument raises form over substance to a ridiculous degree. The salient question is not "which other form of collocation does cageless collocation most *sound* like?," but rather "what from of collocation does cageless collocation most *cost* like?" A "physical" cageless collocation arrangement causes the ILEC to incur costs that mirror those of a virtual collocation arrangement.

Q. PLEASE EXPLAIN WHY THE COSTS OF CAGELESS AND VIRTUAL COLLOCATION SHOULD BE THE SAME.

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1 A. The costs should be comparable (if not identical) because of the similarities between the
2 two arrangements. In a virtual collocation arrangement, the ILEC places the CLEC's
3 equipment into service (under the ILEC's control) in its central office and provides the
4 facilities necessary for the equipment to operate so that interconnection between the two
5 networks can be achieved. The "virtually collocated" equipment is not physically
6 separated by either cages or walls in a defined space, and does not require separate
7 support services (such as HVAC). Similarly, in a physical cageless collocation
8 arrangement BellSouth will place a CLEC's equipment (or permit the CLEC or CLEC's
9 authorized contractor to place the equipment) into service within the BellSouth central
10 office, again not physically separated by cages or walls and without the requirement of
11 separate support systems. In both cases, the CLEC equipment operates in a position
12 within the BellSouth equipment line-up (potentially sharing an equipment rack with
13 BellSouth equipment) rather than in an identified and physically isolated "physical
14 collocation space." As a result, the costs imposed on BellSouth for the space occupied by
15 the CLEC equipment in a virtual or cageless physical collocation arrangement should be
16 the same.

17 Q. WOULD ALL OF BELLSOUTH'S RATES FOR VIRTUAL COLLOCATION APPLY
18 IN A CAGELESS ARRANGEMENT?

19 A. No. BellSouth has developed rates for a security escort that would presumably apply for
20 the time that a CLEC's employee or contractor was in the BellSouth central office

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1 installing or maintaining the CLEC equipment. In the Advanced Services Order, the FCC
2 explicitly concluded that security cameras and computerized monitoring systems will
3 “adequately protect incumbent LEC networks without the added cost and burden of
4 security escorts.” (§§ 48-49). The FCC also explicitly limited any security measures
5 imposed by incumbent LECs on CLECs to those that the incumbent LEC maintains for its
6 own employees and authorized contractors (§ 47). BellSouth does not currently require
7 security escorts for its employees or authorized contractors.

8 Q. IS IT NECESSARY OR APPROPRIATE FOR BELL SOUTH TO CHARGE CLEC’S
9 AN “APPLICATION COST” IN ORDER TO PROVIDE CAGELESS COLLOCATION?

10 A. No. In contrast to caged collocation, which requires space assessment and enclosure
11 design charges, cageless collocation simply involves the placement of CLEC equipment
12 in the same area (and potentially in the same equipment rack) as BellSouth’s equipment.
13 As part of its ongoing network management, BellSouth has records of where such space
14 is available in each of its central offices. Processing an application for a caged
15 collocation arrangement may require an ILEC to assess available space, design and
16 construct an enclosure, and pull power, monitoring, and network cables to that space. In
17 direct contrast, the FCC has been clear that processing an application for cageless
18 collocation need not, and cannot, include any of these tasks.

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1 Q. DO YOU HAVE ANY INDEPENDENT EVIDENCE THAT IT IS REASONABLE FOR
2 CAGELESS COLLOCATION TO BE PROVIDED WITHOUT CHARGING THE
3 COLLOCATING CARRIER AN APPLICATION FEE?

4 A. Yes. ITC^DeltaCom, a member of the Competitive Coalition, currently makes
5 collocation available within its premises. ITC^DeltaCom does not charge up-front
6 charges of any kind, but simply charges collocators a monthly fee for each equipment
7 rack they utilize.

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Section 6: Foundation for the Cost of Capital and Depreciation Assumptions

Q. PLEASE DESCRIBE THE DEPRECIATION RATES THAT YOU HAVE USED TO DEVELOP YOUR COSTS AND PROPOSED RATES.

A. I have considered three sources of information: the FCC-approved range of values for each asset life and salvage value, the latest FCC-prescribed life and salvage value, and BellSouth's proposed values in this proceeding.

I have developed data points using a two step approach. In step one I collected, for each account, the FCC-prescribed value. In step two, I compared the results of step one with the proposed asset lives and salvage values proposed by BellSouth. If BellSouth proposes a longer asset life or larger salvage value, I have accepted the BellSouth figure.

Exhibit DJW - 8 is a table showing, for each asset account, these four data points and my recommended value.

Q. PLEASE DESCRIBE THE COST OF CAPITAL THAT YOU HAVE USED TO DEVELOP YOUR COSTS AND PROPOSED RATES.

A. I have estimated BellSouth's cost of capital based on well-established financial principles. I developed a forward-looking cost of debt based on the yields of BellSouth's outstanding bonds, and a forward-looking cost of equity by considering the results of both a Discounted Cash Flow ("DCF") and Capital Asset Pricing Model ("CAPM") approach. These costs of debt and equity are then weighted to develop a Weighted Average Cost of

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1 Capital ("WACC"). Workpapers showing the underlying data for each calculation
2 described in this section are attached as Exhibit DJW - 9.

3 The WACC, the assumed capital structure (percentage of debt and equity), and the
4 cost of debt developed through this process were then input into the BSCC (the BSCC
5 then calculates the implied cost of equity from these inputs).²¹

6 Q. PLEASE DESCRIBE THE SOURCES OF THE DATA USED IN YOUR COST OF
7 CAPITAL CALCULATIONS.

8 A. I used published data from established industry sources, including the Standard & Poors
9 Industry Guide, Standard & Poors Stock Guide, Value Line, Moody's Bond Guide, the
10 Wharton Economic Forecasting Associates ("WEFA") Group, Ibbotson Associates, and
11 Institutional Brokers' Estimate System ("I/B/E/S"). This data generally falls into two
12 categories: current values and long term trends. My current values are based on the latest
13 available published data, usually 3rd quarter end ended September 30, 2000 or the year
14 ended December 31, 2000. My long term data represents average values over several
15 decades.

16 Q. PLEASE DESCRIBE HOW YOU CALCULATED THE COST OF DEBT.

17 A. The yield to maturity represents the forward-looking cost of debt. In order to determine
18 what investors would require to cover the risk of long-term bonds, I consulted the January
19 2001 edition of Moody's Bond Guide. For each of BellSouth's outstanding bonds I

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1 reported the yield to maturity and dollar value of each issue. I weighted the yields based
2 on each bond issue's contribution to the total dollars of debt outstanding. This process
3 yielded a forward looking cost of debt for BellSouth of 7.2%, which was then used (as
4 described in detail below) in the calculation of the WACC.

5 Q. PLEASE DESCRIBE THE METHODS YOU USED TO DEVELOP A COST OF
6 EQUITY FOR BELL SOUTH.

7 A. I developed a cost of equity for BellSouth by considering the results of both a DCF and
8 CAPM approach.

9 Q. PLEASE DESCRIBE THE DCF APPROACH AND HOW IT WAS IMPLEMENTED.

10 A. The DCF approach is based on recognition of the fact that a rational investor will be
11 willing to pay a price for a given stock that is equal to the present value of the future
12 payments that such an investment will produce (expressed as dividends). The formula to
13 be solved when applying the DCF approach is the following [equation 1]:

$$P = \text{Div}_1 / (1+k) + \text{Div}_2 / (1+k) + \text{Div}_n / (1+k) + \dots \quad [1]$$

15 where,

16 P is the market price of the stock,

17 Div_n is the expected dividend in year n, and

18 k is the cost of equity.

²¹ BellSouth offers no explanation why the BSCC input screen was not designed to take the more straight-forward approach of having the user input cost of debt, cost of equity, and capital structure assumptions (from which the

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1 This equation is then solved for k.

2 Since the level of future dividends is unknown, it is necessary to make
3 assumptions about expected future levels. The simplest approach is to assume that
4 growth in dividends will be constant over time. With this simplifying assumption, the
5 formula for k can be reduced to

$$k = \text{Div}_1 / P + g,$$

7 where,

8 g is the expected future growth rate.

9 More sophisticated methods of estimating future growth can yield more accurate
10 calculations of return on equity. By identifying three different growth rates, the three
11 stage DCF allows for high growth rates in the first five years and levels off to a
12 sustainable growth rate. Otherwise, the expected high cash flow in the early years is
13 ignored or the company, with a perpetually high growth rate, eventually outgrows the US
14 economy.

15 For my three stage DCF, I have used I/B/E/S's forecasted 5-year growth rate (stage 1) for
16 each company and the WEFA Group's 4th quarter 2000 long term sustainable growth rate
17 forecast for the US economy of 5.3% (stage 3). Stage 2, which in the model is years six
18 through twenty, the growth rate declines on a straight-line basis from the high growth

model could then calculate a WACC).

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1 period of stage 1 to the sustainable growth rate of stage 3. Stage 3 is years twenty and
2 beyond.

3 The growth rates are applied to the 2001 projected dividend obtained from a
4 Value Line, Inc. report dated January 5, 2001. Stock prices as of December 16, 2000 were
5 also from the Value Line report.

6 Q. HOW IS THE DCF COST OF EQUITY CAPITAL COMPUTED?

7 A. Given the market price of a company's stock, the projected dividend and the forecasted
8 growth rates, equation 1 can be solved for k. Since there are so many periods of growth,
9 solving for the cost of equity is an iterative process. The results ranged from 7.83% to
10 10.30% for the companies analyzed. Since the DCF method does not account for different
11 capital structures, the value-weighted average of the other company's cost of equity was
12 calculated. This aggregate of the comparable companies adjusts for the variable risks. For
13 BellSouth, the company cost of equity is weighted against the cost of equity for the
14 comparable companies (25% and 75% respectfully) for a DCF cost of equity of 8.82%.

15 Q. PLEASE DESCRIBE THE CAPM APPROACH AND HOW IT WAS IMPLEMENTED.

16 A. The capital asset pricing model calculates the rate of return that an investor would
17 require, given the systematic risk of the company and the market risk premium. The
18 market risk premium is the risk of the market less the risk free rate. The company risk
19 premium is the equity cost of capital and is given by equation 2:

$$k_e = r_f + \beta (r_m - r_f) \quad [2]$$

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1 where,
2 r_f is the risk free rate,
3 r_m is the market risk,
4 k_e is the equity cost of capital,
5 β is the company beta.

6 Q. WHAT IS THE SOURCE OF THE BETA COEFFICIENT USED IN YOUR CAPM
7 CALCULATIONS?

8 A. The Standard & Poor Stock Report dated December 16, 2000 provided a beta for each
9 company. The amount of a company's debt leverage affects the riskiness of the company.
10 As a result the beta for each company must be adjusted to accurately reflect the perceived
11 risk of the companies' equity. This is accomplished in a two-step process. First, the raw
12 betas are "unlevered" based on the market value debt/equity ("D/E") ratios²² of each
13 company. The formula for "unleveraging" a levered beta is given in equation 3:

$$14 \qquad B_u = B_L / [1 + (1 - T_c) * D/E] \qquad [3]$$

15 where,

16 B_u is the "unlevered" beta,

17 B_L is the "levered" beta,

18 E is the value of the sample company's equity,

²² Data from the SEC form 10-Q for 3Q 2000 used in order to calculate the D/E. The amount of debt was compared the outstanding shares of stock multiplied by the stock price as of September 30, 2000.

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1 T_c is the corporate tax rate (an average rate for the sample),

2 D is the value of the sample company's debt.

3 The value weighted average unlevered beta for this sample of companies is .56. A
4 weighted average of the unlevered betas was calculated by using the market values for
5 each company.

6 Second, the average beta is re-levered to take each capital structure into account.
7 The average beta replaces B_u and equation 3 is solved for B_L . The beta calculated for
8 BellSouth using this process is .65.

9 Q. PLEASE EXPLAIN WHAT THE MARKET RISK PREMIUM REPRESENTS.

10 A. The market is risk premium is the difference between the diversified risk in the market
11 and the risk free rate of government issued securities ($r_m - r_f$ in the CAPM). Historically,
12 the expected return of the market as a whole has averaged 9.55%. This market return can
13 then be compared to two proxies for the risk free rate. The first uses 30-year US bonds
14 and the second considers T-bills (short term instruments). According to the WEFA
15 group, the expected long-term yield on the 30-year US Bond is 5.97%. This yields a long-
16 term market risk premium of 3.58%.

17 In order to calculate the risk premium for T-bills, I adjusted the long run expected
18 return of T-bills by the historical term premium.²³ The result is a market risk premium
19 over the short-term risk free rate of 4.43%.

²³ The average return over fifty years of bonds versus T-bills.

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1 Q. HOW IS THE CAPM COST OF EQUITY COMPUTED?

2 A. Given the market risk, the risk free rate and the company beta, equation 2 is solved for k_e .
3 The cost of equity for BellSouth was 8.05% using short term T-bills and 8.31% using
4 long term bonds. I used the average of these results for a CAPM cost of equity of 8.18%.

5 Q. HOW DID YOU COMPUTE YOUR PROPOSED COST OF EQUITY FOR
6 BELLSOUTH?

7 A. Since both the DCF and CAPM have a risk of error, I have used an average of the results
8 from the two methods. The cost of equity used in the WACC formula for BellSouth is
9 8.5%.

10 Q. WHAT IS THE CAPITAL STRUCTURE OF BELLSOUTH AND HOW DID YOU
11 CALCULATE IT?

12 A. The capital structure for all of the companies was calculated using the book value of
13 equity and the market value of equity. Based on book value²⁴, BellSouth's % of debt (D/
14 D+E) was 54.8% and the % of equity (E/D+E) was 45.2%. Based on market value²⁵,
15 BellSouth's % of debt was 20.9% and the % of equity was 79.1%.

16 Q. HOW DID YOU CALCULATE YOUR PROPOSED COST OF CAPITAL?

17 A. The cost of capital was calculated using the WACC formula is given by,

18
$$WACC = w_d * k_d + w_e * k_e$$

²⁴ Source for data was SEC form Q-10 3Q 2000.

²⁵ Stock price of outstanding stock as of Friday, September 29, 2000.

**Direct Testimony of
Don J. Wood**

1 where,

2 w_d is the fraction of debt in the capital structure,

3 k_d is the forward-looking cost of debt,

4 w_e is the fraction of equity in the capital structure,

5 k_e is the forward-looking cost of equity.

6 The cost of debt was calculated above as 7.2%. The cost of equity was 8.5%.

7 Because the risk of debt and equity are different they must be weighted by the capital

8 structure of the company. I arrived at the minimum cost of capital of 7.79% by using the

9 book values of the capital structure. The market value of the capital structure was used to

10 calculate the maximum cost of capital of 8.23%. I am proposing a cost of capital of

11 8.01%. This is an average of the minimum and maximum outcomes.

12 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

13 A. Yes.